

The Law and Economics of Workers' Compensation

Linda Darling-Hammond and
Thomas J. Kniesner

Policy Issues and Research Needs

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Foreword

This document inaugurates a new series of Institute for Civil Justice reports which share the subtitle "Policy Issues and Research Needs." Each report in the series summarizes the current national situation in one area of civil justice and identifies critical issues about which research seems both possible and necessary. Reports will be revised, updated, or completely rewritten as research needs and circumstances change. These reports do not advance policy recommendations. Their objective is to provide the informed, but not necessarily expert, reader with basic information about the overall status of the area discussed and the main avenues through which the research community may shed light on active policy issues.

It is particularly fitting that the series begin with a study of workers' compensation. The most dramatic event in the twentieth century history of the American civil justice system was the relatively rapid extraction of the rules governing employers' responsibility for work-related injuries from the traditional law of torts. The unique "bargain" struck by workers' compensation laws remains an unusually clear example of compromise between the traditional rights of individuals and the practical necessities of industrialized economies. Under these laws, the injured employee surrenders his (or her) right to full compensation for nonmedical costs in turn for his employer's prompt payment of medical and subsistence expenses. This plan is meant to avoid a costly and time-consuming legal process to determine whether and to what degree the employer's or the employee's negligence contributed to the injury. The employer, on the other hand, gives up the immunity which he would gain by disproving negligence in return for the certainty that his liability will be limited to a schedule of finite benefits set by a public body according to injury classes which disregard individual circumstances (other than fraud or intentional harm).

The workers' compensation approach was adopted in virtually all American states within 20 years at the outset of the century. The speed of the change was the more remarkable in light of the fact that many state supreme courts first ruled the approach unconstitutional. The view that it was unconstitutional for employers to pay without proof

that they had been at fault, initially widespread among business and judicial leaders, was quickly routed by the consensus that an urbanized industrial economy required a quick, predictable way of dealing with workplace injuries. Such injuries were happening on a scale unknown to pre-industrial societies and were overwhelming the institutions established by such societies for determining rights and resolving disputes.

So sudden and complete was the transformation of opinion that today most Americans accept workers' compensation as a fixed feature of the civil justice scene—so essential and obvious as to be beyond policy debate. Only rarely does this pervasive instrument of social and economic policy emerge from its technical cocoon into the publicly visible portion of the policy arena. Except for those involved in its administration and the periodic struggles over its benefit schedules, few citizens—or legislators—have more than the haziest knowledge of how the system works or what policy issues it presents.

As this report shows, this placidity is misplaced. The same economic and social forces that have buffeted other social institutions have affected workers' compensation. First, modern medicine has identified new links between work and diseases. Many of these diseases, unknown at the time of exposure, may take years to develop. Second, modern judicial doctrine has altered some aspects of the workers' compensation "bargain," introducing such factors as employer negligence into the compensation calculus. Third, inflation makes maintaining the balance between prevailing wage rates and benefit schedules difficult. At the same time, pressures are generated for indexing benefits to be paid past beneficiaries whether or not the system's financial structure had provided for such indexing. Finally, the dividing line between workers' compensation and the tort system (which theoretically fully compensates for all costs of injuries in which negligence or strict liability is shown) seems to be more and more frequently crossed, so that the two parallel systems increasingly provide compensation for the same injury.

One might well inquire into the nature of these changes. How do they affect the fairness, the incentives, or the financial viability of workers' compensation? What are the basic economics of the system? Is the system in financial trouble? Are entire industries threatened by recent changes? What alternatives or major alterations to the system have been proposed?

Linda Darling-Hammond and Thomas J. Kniesner address these questions by reviewing the principal trends and issues in the current statutory, judicial, and professional literature on the law and economics of workers' compensation. They provide concise, factual, and analytic material necessary to an informed view of the current policy scene. The

reader who desires further information on any single topic will find the appropriate references in the footnotes.

We hope that this report will add to a broader, more incisive examination of the issues concerning workers' compensation.

Gustave H. Shubert
Director, The Institute for Civil Justice

Executive Summary

Workers' compensation laws, enacted by most American states in the early twentieth century, have received widespread national attention only during the past decade. The workers' compensation system was originally designed to provide prompt, certain relief to victims of industrial accidents by removing dispute resolution from the tort-based liability system. A bargain was struck between the rights of employers and employees: Employers became liable to payment without a finding of fault in return for a guarantee that their liability would be restricted to statutorily set benefit amounts; employees gave up the right to sue their employers for full damages in return for a guarantee of prompt, certain compensation for work-related injuries. In recent years, the nature and extent of the employer's liability have changed rapidly as coverage and benefits have expanded and recourse to the courts for resolving uncertainties has become more frequent. This report describes the current status of workers' compensation law, reviews the legal and economic bases for the system's design, and identifies emerging issues and areas of concern that may be illuminated by future research.

EVOLUTION OF WORKERS' COMPENSATION LAW

Industrialization in the nineteenth century generated an unprecedented rate of employment-related injuries. The legal system made it very difficult for injured workers to receive compensation from employers. In Europe this led to reforms that made compensation compulsory and levied the cost partially or wholly upon employers. By 1908, these reforms had occurred in all Western industrialized countries except the United States. American adoption of the workers' compensation approach was greatly slowed by judicial resistance to forcing employers to pay without any finding of fault. Nevertheless, virtually all states enacted some form of workers' compensation between 1911 and 1920, although these plans were generally elective and applied mainly to

highly hazardous occupations. By 1949, programs of income maintenance for work-related injury were in effect in all states. Still, as recently as 1968, 23 states permitted elective coverage, 24 had size-of-firm restrictions, and 29 excluded farm workers.

In the late 1960s, the federal government became instrumental in extending coverage to workers traditionally not covered by state systems. The Coal Mine Health and Safety Act (1969) established a Black Lung Benefit Fund, and the Occupational Safety and Health Act of 1970 set up, in addition to an elaborate regulatory structure, a National Commission on State Workmen's Compensation Laws. This Commission reported in 1972, suggesting 19 reforms considered essential for a modern system. An Interdepartmental Workers' Compensation Task Force was established in 1974 to follow up on issues and recommendations raised by the National Commission. Although many state systems responded to the Commission's recommendations with substantial changes, there is continuing pressure to enact federal standards for enforcing the Commission's proposals. At this writing, however, such standards have not been enacted.

Nearly 90 percent of American workers are now covered by state and federal workers' compensation laws. Those not covered include some farm workers, self-employed persons, casual and domestic workers, and some state and local government employees. About 7.8 million workers' compensation awards were made in 1978, of which about six million (or 77 percent) were medical payments. Most awards were for temporary or partial disabilities. However, the one-tenth of 1 percent of benefits awarded for permanent disability or death accounted for three-quarters of the total benefits paid. Dollar totals for benefits paid amounted to \$7.6 billion in 1976, up from \$3 billion in 1970. Dollar costs to employers have also climbed from \$4.9 billion in 1970 and \$11 billion in 1976 to an estimated \$15.8 billion in 1978. The average premium for workers' compensation insurance has risen from \$1.11 per \$100 of payroll to an estimated \$1.80 in 1978.

During the last decade, selling workers' compensation insurance became substantially less profitable than in previous years. While the ratio of current benefits paid to current premiums received remained stable, the amounts required to be reserved for future payments to compensate current-year injuries rose sharply. As a result, stock insurance companies showed a net loss of 5.1 percent in 1976, while mutual companies showed a surplus of only 1.6 percent. Some signs indicate that these trends leveled off somewhat after 1976, but insurers continue to be concerned about their capacity to project program costs and to obtain the public approval necessary to charge the premium rates required to pay those costs. The changing economics of workers' compensation have combined with changes in law, medical technology, and

other factors to produce an unusual state of flux in most state systems. Courts and legislatures across the country are wrestling with these problems.

THE CURRENT STATUS OF WORKERS' COMPENSATION

The status of workers' compensation law across states can be summarized by type and degree of coverage, income protection, medical care and rehabilitation, safety incentives, and delivery systems.

Coverage

All but three states have compulsory laws (usually with exemptions). In 1976, 26 states and the District of Columbia covered more than 85 percent of their workforces; five states covered less than 70 percent of their workers. All states limit compensable injuries to those "arising out of or in the course of employment." In other words, the risk must be a condition of the task or work environments, and/or the employee must be engaged in a job-related activity at the time of injury. Many states exclude injuries resulting from willful misconduct, aggressive assault, and drunkenness; some states increase compensation when the employer has willfully misbehaved.

Originally excluded from workers' compensation laws, occupational disease is now covered in all states. However, the coverage has numerous limitations. Frequently, the disease must be shown to have resulted from an unexpected event or exposure. As a result of these limitations, only a tiny fraction of occupationally-related disease cases enters the workers' compensation system; those that do are typically resolved by "compromise and release" settlements. When doubt exists regarding the cause of an illness, courts tend to favor claimants, especially if the risk is demonstrably higher in the occupation in question than in other occupations.

Cumulative injury (harm resulting from long-term or repeated job-related causes) is an older category of compensable injury than occupational disease. Recently, however, courts have expanded the definition to include conditions of reduced health that may result from natural, non-job-related causes. This expansion is justified under the well-established doctrine that an employer must "take the employee as he finds him" and compensate him for any exacerbation of a latent problem. In determining causation, courts usually examine whether the job entails unusual strain or recognizable contributions to the health problem.

As general liberalizing trends continue, definitions of the scope of workers' compensation coverage are in flux. Linkages between jobs and cancer, heart disease, emotional disorders, and other health problems are difficult to prove or disprove. Growing tendencies to grant such claims have led to reevaluation of the goals of the system. Those who emphasize its social objectives favor more liberalizing and easier standards of proof; those most concerned about injury prevention worry that the financial incentives to control loss will be lessened should the relation between employment and injury be weakened. The number and kinds of illnesses determined to be job-related can greatly affect the cost of workers' compensation. For example, it is estimated that if only 2 percent of all cancer deaths in one year were found to be job-related, workers' annual death benefits would almost double. Including 1 percent of all cardiovascular deaths in the workers' compensation system would triple the volume of death claims. The complex process of determining standards is further hampered by the diversity of state proposals for defining occupational disease.

Income Protection

The amount and duration of disability benefits are set by the degree of the disability (partial or total) and by its duration (temporary or permanent). The common unit of measurement of benefits is a specified proportion, usually two-thirds, of the wages lost because of the injury. Statutory minimums and maximums on both payments and duration are also common. Virtually all states have raised benefits since 1972, but few have reached the maximum levels urged by the National Commission. Fifteen states have tied annual increases in at least some benefits to the cost of living. Recent studies suggest that the post-1972 benefit increases have been accompanied by increased numbers of claims and lengthened disabilities. For example, the General Accounting Office found a more than eightfold increase in lost-time injury claims among federal employees between 1974 and 1979. GAO estimated that disability payments might exceed "take-home pay" for about one-third of the employees receiving benefits under the Federal Employees' Compensation Act.

The most controversial type of benefit payment is that for permanent partial disability. These account for more than half of all benefits paid. These benefits also reflect the greatest policy diversity among the states, particularly when nonscheduled injuries (i.e., injuries not specifically listed in a benefit table) permit discretion as to compensation. Scheduled benefits are certain but insensitive to special circumstances (e.g., a pianist and a construction worker receive the same

compensation for loss of a finger). Nonscheduled benefits can be more sensitive but are much more volatile and uneven in application, yielding higher proportions of contested claims and compromise and release settlements.

Medical Care and Rehabilitation

All states stipulate immediate care for injured workers. Almost all have removed time and dollar ceilings on such expenses. In addition, stipulations limiting the time elapsed between an injury and its manifestation have been eliminated. A scant majority of states permit the employee to select his own physician; elsewhere, employers or their insurers make the selection.

Most states pay less attention to physical and vocational rehabilitation. In 1972, only 26 states had a rehabilitation division located in the workers' compensation agency, and most state departments of vocational rehabilitation had little connection with the workers' compensation agency. Moreover, workers' compensation itself limits incentives to provide rehabilitation services for minor injuries by requiring the employee to prove the extent of the injury long after it has occurred, and by increasing employers' liability for reinjury of already partially disabled workers (though this last problem has recently been addressed by the establishment of second-injury funds in several states). Authorities agree that more effective rehabilitation efforts would result from coordination of medical and rehabilitation services, prompt claims settlement, and close supervision by the compensation agency.

Safety Incentives

Although it is estimated that one of ten American industrial workers suffers a work-related accident or disease each year, only one-third of these mishaps result in lost work time. Such injuries represent only a slightly higher risk than that presented by off-the-job living and well under half the risk presented by time spent in a motor vehicle. In 1970, work-related injuries made up about 20 percent of all accidental injuries, and work-related deaths made up 12 percent of accidental deaths (down from more than 20 percent in 1929). By all measures, industrial safety has improved considerably, though not uniformly, over the last several decades.

Workers' compensation demands that each manufacturer enjoying the profit of a product should assume the costs of unavoidable injuries. Each producer is consequently motivated to lower accident costs to

achieve a competitive advantage. Whether universal insurance availability reduces or expands these incentives is debatable. However, insurers generally do seek to encourage safety by providing accident-prevention engineering services and by using a two-tiered rating system which, after grouping firms by industry type, alters rates for larger companies according to their loss experience. In 1972, about 20 percent of all firms were experience-rated; these firms employed about 80 percent of all employees covered by the workers' compensation system. The number of experience-rated firms is higher today.

Complicating factors make unclear the effect of workers' compensation safety incentives on job-related disability rates. It might be useful to evaluate the licensing requirement, adopted in Texas, Oregon, and Florida, that workers' compensation insurance carriers provide loss prevention services to all their clients. Studies comparing the effectiveness of government-enforced safety standards with that of standards administered by insurance companies would also be helpful.

Delivery Systems

The dream of a self-administering system has not been realized because (a) determinations of compensability and extent of disability are controversial; (b) state agencies have not sufficiently participated in clarifying statutes and settling disputes; and (c) societal values have, over time, expanded the purview of the system and obscured the differences between its goals and those of other social insurance mechanisms. Litigation is often a technique for rearguing the social policy underlying the system. According to one estimate, in 1975, about 20 percent of all claims were contested, with a much higher rate for occupational disease claims. By 1977, the cost of adjudicating claims may have amounted to as much as 17 percent of the cost of benefits paid. The adversarial atmosphere surrounding the workers' compensation system may explain why many workers choose not to submit injury and occupational disease claims to the system but to a variety of other social insurance programs instead.

The volume of litigation varies significantly between states, as do promptness of settlement and administrative mechanisms for handling claims. Administrative responsibility is centered usually in a single agency. The agency may or may not also have adjudicatory powers and may or may not take an active posture toward its duties. Organizational efficiency varies greatly—in 1972 half the states could not even estimate the percentage of contested cases. A majority of states require agreement between employer and employee before payments can commence. This requirement may explain why many injured workers hire

lawyers in uncontested cases. Other states begin immediate payments; the state agency becomes involved only if a dispute arises over liability. However, once employer liability is established, the duration of that liability must be settled. Some states resolve this question through compromise and release settlements that award a lump sum, generally in an amount between the employee's claim and the employer's offer. Despite much criticism, this practice is nevertheless strongly defended by many of the states that permit it.

Private insurers pay about two-thirds of all benefits, and state compensation funds about 20 to 25 percent; self-insured companies pay the remainder. Six states ban private insurance, and 18 states operate state funds. Four states do not permit self-insurance. There are longstanding disputes about whether the state fund or the private insurance approach is cheaper, but it does seem clear that private insurers provide more accident prevention services and are better adapted to multi-state employers.

ALTERNATIVES TO WORKERS' COMPENSATION

Unlike the law of torts from which it was extracted early in the century, workers' compensation is not designed to compensate all non-medical injury-related costs. Rather, workers' compensation is designed to provide enough support to sustain the injured worker during recuperation without dulling his incentive to return to the labor force. Because the tort system—which does seek to provide full compensation for all losses suffered because of compensable injury—operates in parallel with the workers' compensation system, the extent of the employer's exclusive liability has been subjected to constant legislative and judicial modification and debate. Other possible avenues of compensation are summarized below.

Tort Suits Against the Employer

A worker may sue his employer in tort for full compensation if his injury is not compensable under workers' compensation and if he can prove that his injury was caused by employer negligence. However, in some states a worker can win such a suit even when workers' compensation is applicable if he can show that the employer deliberately caused the injury. By federal law, railroad and maritime workers can collect compensation benefits as well as sue their employers for negligence. In some cases, the worker may sue the employer in the latter's capacity as manufacturer of the injury-causing product, while collecting com-

pensation from him in his capacity as employer. Many states immunize fellow employees of the same employer from personal suit by injured workers, and in some states (but not all) the immunity extends to the employer's insurer and/or to his contractors and subcontractors. In general, however, the "fellow employee" immunity does not extend to employees of such other companies.

Suits Against Third Parties

An injured worker may sue any party connected with an accident who is not granted immunity by the workers' compensation law. It is estimated that in 1974, 31,500 of 1.5 million compensation claims (or about 2 percent) led to suits against third parties, generating \$1.5 billion in payments beyond the \$5.5 billion paid in compensation benefits resulting from these claims. Most third party suits are product liability actions; these actions often raise questions about the relative negligence of manufacturers, employers, and even employees in cases of work injury involving possible product defects. The legal rules governing recovery from these third parties have important effects upon the actual allocation of the costs of accidents.

Subrogation

Subrogation is the right of the party who has compensated an injured person to sue a third party (who is primarily responsible for the injury) for reimbursement. Some states permit an employer to exercise this right at the same time that the injured employee may be suing the same third party; others establish a sequence for such suits. Four states unconditionally assign the employee's right of action against third parties to the employer if the injured worker has opted to accept workers' compensation. These four states permit no subrogation by the employee, and others allow it only in specified circumstances. When an employee is permitted to file suit against a third party, the employer is usually considered to have a lien on any award the employee receives; the employee may keep what remains after the employer has been reimbursed. There are long-standing arguments about whether the benefits of subrogation outweigh the detriments of increased litigation and possible reimbursement of negligent employers.

Contribution and Indemnification

Contribution is a process through which the payment of damages is apportioned between two or more parties who are jointly responsible

for a compensable injury. Each such party is typically required to pay a share of the judgment or settlement. However, most states do not permit a third party sued by an injured worker to secure contribution from the worker's employer even if the latter has been negligent. This policy reflects the view that workers' compensation law makes it impossible for an employer to be jointly liable with other injurers even though his negligence may have been a partial cause of the injury. One state does permit limited contribution in these circumstances, and at least one other prevents a negligent employer from collecting on his workers' compensation lien on judgments against third parties. The recent shift of most states to the "comparative negligence" method of apportioning liability according to degree of responsibility for the injury has resulted in a number of different approaches to apportioning contribution among injurers who do not enjoy the employer's immunity from liability.

Indemnification is a process in which an adjudged injurer is completely reimbursed by another party "more responsible" for the injury. Although this right has been generally denied to third parties (as to employers), some states have recently ruled that denial is unconstitutional. Other states allow such indemnification under special circumstances.

BASIC ECONOMICS OF WORKERS' COMPENSATION AND ECONOMIC ISSUES IT RAISES

In that work-related injuries and diseases are undesirable by-products of the creation of goods and services, they may be likened to pollution. Reducing injuries costs money, but so do the medical care and lost work time such injuries cause. It is possible to plot a firm's safety production function, showing the relation between expenditures for injury and disease prevention and the fraction of the firm's employees who are hurt or become ill. It is also possible to plot the expense of generating greater degrees of safety (i.e., the marginal cost of safety) and the cost-savings that results from improvements in safety (i.e., the marginal benefit of safety). The firm's optimal economic situation is achieved when the marginal cost of safety equals the marginal benefit of safety. A dollar unspent on safety below this expenditure level will generate more than a dollar of loss due to injury; a dollar spent above this level will generate less than a dollar of benefit to the company. Inevitably, though unfortunately, the expenditures necessary to achieve perfect safety (as distinguished from a high degree of safety) are never in the firm's economic interest.

One often-cited policy objective of the civil justice system is *social efficiency*, which may be said to exist when responsibility for injury compensation is assigned in such a way that the sum of the costs of injuries and the costs of preventing them is as low as possible. Some would maintain that this goal was achieved by the system that dealt with job-related injuries before workers' compensation was introduced. However, the accepted goal of *social equity* requires that costs be fairly allocated between employers and employees. Workers' compensation reflects an attempt to introduce equity into a system perceived to place an unjust share of the burden upon employees.

However, economists are raising serious questions about the degree to which workers' compensation meets its stated objectives. For example, the typical methods of calculation used to determine just levels of income maintenance for injured workers during recovery often overlook the tradeoff between salary and fringe benefits in establishing the worker's income. They also tend to ignore the worker's age and career stage. The subtle calculations required to estimate income lost through permanent partial and temporary total disabilities do not even appear in the technical literature dealing with workers' compensation. Therefore, very little is known about the degree to which the compensation system protects workers from economic hardships, although it is likely that the true protection is less, at least in some types of cases, than the 66-2/3 percent of income that most states seek to replace. Moreover, the superiority of this replacement level to other levels has not been analytically established.

The same analytic uncertainty obtains regarding the safety incentive effects of workers' compensation. Even the relatively crude studies that have been done cannot show conclusively that such a system, working through compulsory insurance, results in fewer industrial injuries. One recent regression analysis of the period 1900 to 1940 suggests that both tort law changes and the imposition of workers' compensation reduced the rate of machine-related industrial deaths, and that of the two factors, workers' compensation was the more effective. But work by the same researcher indicates that more generous workers' compensation benefits are also historically associated with higher levels of industrial injuries. The analytic cupboard is entirely bare regarding the effects of workers' compensation on work-related diseases.

A few proposals for replacing or altering workers' compensation have appeared in the economic literature. One proposal would substitute a blend of safety standards, health insurance, and a general income maintenance program. This idea has been criticized on grounds that most accidents do not result from hazards susceptible to removal through standard-setting; that standards imply compliance enforce-

ment (with the related costs); that safety incentives would be lost or misdirected; and that other social programs would be distorted in order to accommodate the compensation purpose. Another proposal would preserve the compensation system, but it would emphasize major injuries, de-emphasize minor ones, and allow workers to sue employers for damages for pain and suffering. A third proposal would require both employers and employees to purchase insurance against work-related diseases and injuries, and let litigation determine the financial responsibility according to the adjudged negligence of each. (An initial payment would be made to the worker by his insurance company pending final resolution of responsibility.) Neither of these last two proposals has yet been accorded careful analytic attention, although the second has been faulted for returning to methods in effect prior to workers' compensation while not explaining how the courts and the insurance institutions would work under those methods.

SUGGESTIONS FOR FURTHER RESEARCH

Workers' compensation is meant to assign "certain but limited liability" to employers for work-related injuries and illnesses. The process of defining the limits of that liability has generated a great deal of uncertainty and a great many inconsistencies in administration, which troubles employers, insurers, and workers, alike. In order to evaluate various means for reducing some of these uncertainties, answers to the following questions must be found:

1. How do the practices of various actors within the system—administrators, insurers, employers, lawyers, employees, and unions—affect the system's outcomes (i.e., who pays and is paid, how much is paid and how promptly)?
2. How do statutes, administrative rulings, and judicial interpretations of the laws affect the outcomes of the system?
3. How do the rules that govern compensation affect the behavior of the key actors? How do the actors seek to cope with uncertainties created by changes in the rules?

Several possible approaches to answering these questions appear fruitful:

- a. A cross-state study of how administrative practices affect disposition of claims.
- b. A survey of closed claims to investigate the causes of litigation.
- c. A study of the impact of judicial rulings on the behavior of claimants, employers, and insurers.

- d. A study of the outcomes of federally administered workers' compensation programs.
- e. An international comparative study of how injuries in the various countries with workers' compensation systems vary according to the characteristics of the programs.
- f. A simulation model that considers production, wages, and job injuries in a general equilibrium context. Not only would such a model be a second way of examining the social effects of changes in workers' compensation and how it may conflict with or be reinforced by the Occupational Safety and Health Act, but it would also point out the type of information necessary to really understand the economic impact of workers' compensation. Subprojects of the model, each of which constitutes a study in its own right, would include research on (1) the degree to which workers accurately assess the risk of work-related injuries or disease; (2) the production and pricing of workers' compensation policies by insurance companies; (3) the relation between industrial production and injuries (how injuries respond to various prevention measures); (4) the relation between coverage and benefit levels and injury reporting and duration; and (5) the true fraction of real income loss currently replaced by workers' compensation insurance.
- g. A social experiment conducted on a large enough scale to produce reliable results. This is probably the best, although, of course, the most expensive, way to examine the social effects of changes in the parameters of workers' compensation.
- h. Studies of "naturally occurring" experiments in states where alternative approaches to loss prevention, provision of benefits, and rules for coverage or determination of compensability have been initiated.

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I. INTRODUCTION

Workers' compensation laws were enacted by most American states during the early part of the twentieth century in response to a growing awareness of the accident-producing effects of industrialization. The workers' compensation system was designed to strike a bargain between the interests of employers and employees by removing determinations of liability from the civil justice system. The bargain involved a quid pro quo between employers' and workers' rights under tort law. With workers' compensation, employers' liability for work-related injuries became absolute but was limited to a fixed schedule of compensation benefits. Employees were guaranteed minimal compensation for such injuries without having to prove employer negligence, but gave up the right to sue their employers for damages beyond the scheduled benefit amounts. The purpose of the system, then, was to ensure income protection for injured workers while minimizing litigation by removing dispute resolution from the tort-based liability system.

The no-fault foundation of workers' compensation law rests on two cornerstones: (1) the employer is liable for all injuries that arise out of and in the course of employment; and (2) the liability imposed upon the employer by workers' compensation is *exclusive*, that is, no further liability can be assessed against the employer for an injury covered by the compensation law. In recent years, the nature of the employer's exclusive liability has been shifting as definitions of compensable injury and illness have expanded and recourse to the courts for resolving a variety of issues has become more frequent.

Many reforms in compensation laws were prompted by the recommendations issued in 1972 by a National Commission on State Workmen's Compensation Laws. Benefit levels have been increased and coverage extended to more workers in nearly all states. At the same time, recognition of the limitations of the workers' compensation system has called into question the underlying principles and early design of the system while drawing disputes increasingly into the civil justice arena. The resolution of current issues regarding causation of injury or illness and employer fault, third party liability, and determination of adequate and equitable benefit levels will reshape the compensation system in important ways. The relationship of workers' compensation to other social insurance and occupational safety programs will also be clarified as the boundaries of workers' compensation are restructured.

This report reviews the major issues of current concern to insurers,

employers, workers, and government agencies regarding workers' compensation law. The compensation system has changed rapidly and dramatically over the past decade, raising new questions and problems with each reform. We discuss the issues that have been identified by experts in the field and suggest areas for research that will help to clarify the effects of different options for reforming or redesigning the system in response to these concerns. We have sought to outline the parameters of contemporary debate, giving consideration to legal, economic, and social issues and to a variety of perspectives advanced by interested groups and individuals. We do not make recommendations for policy changes, although we present information where it is available that may assist others in assessing the effects of current and proposed policies. Our purpose is to provide a conceptual and informational background for the development of a research agenda in this field.

Section II presents a brief history of workers' compensation in the United States and describes the current status of the law and the system itself. The evolution of the system was characterized by gradual expansion and improvement of coverage and benefits through most of the century. The formation of the National Commission on State Workmen's Compensation Laws as part of the Occupational Safety and Health Act of 1970 marked a quickening of reforms in the five areas identified by the Commission as primary objectives of a modern compensation system. These five objectives shape our presentation of current issues related to coverage, income protection, medical care and rehabilitation, safety encouragement, and the delivery system. Workers' remedies outside the compensation system are also discussed, with special emphasis on the growing area of product liability actions in the work environment.

Section III analyzes in more detail some of the economic issues presented in the previous section. We focus primarily on the social efficiency issues associated with the allocation of accident and accident prevention costs through the workers' compensation system and on the social equity issues associated with the establishment of benefit levels that afford adequate income protection. We discuss economic approaches to estimating the effects of workers' compensation on work safety and on lost wage replacement, and present such empirical evidence as is available on the testing of these effects. Finally, we provide a brief analysis of some proposed alternatives to the current system.

Section IV presents some suggestions for future research. The suggestions are directed toward achieving a greater understanding of how the workers' compensation system produces its outcomes and how proposed reforms will affect these outcomes. The appendixes provide additional information on state reforms and on organizations that collect data on workers' compensation issues.

II. THE WORKERS' COMPENSATION SYSTEM: AN OVERVIEW OF CURRENT LAW, PROBLEMS, AND ISSUES

THE EVOLUTION OF WORKERS' COMPENSATION LAW

The primary purpose of the tort system is to resolve disputes in a manner that compensates injured parties for their losses by assessing damages against the party or parties responsible for the injury. The system attempts to perform these functions in a manner that encourages accident prevention activities while minimizing costs to society as a whole. Linking compensation to fault or negligence is intuitively satisfying as a way of allocating the costs of accidents because along with satisfying our notions of fairness, it implicitly encourages loss prevention by penalizing those who do not adequately guard against potential mishaps. However, this is not the only way of providing both compensation for victims and punishment for wrongdoers. Social or private insurance schemes can be used to compensate persons who suffer wage loss and incur medical bills, while safety standards or criminal codes can be used to regulate behaviors and to exact penalties for noncompliance. Further, the joining of liability and compensation through the civil justice system is not necessarily the most efficient and equitable means of meeting income maintenance, health, and safety objectives. The adversarial approach to resolving civil disputes can be costly, time-consuming, and uncertain with respect to outcomes. Legal doctrine and economic theory do not always converge in a way that consistently balances equity and efficiency concerns by assessing damages on the basis of fault while placing responsibility on the shoulders of the party that can prevent an accident at the least cost.

Workers' compensation represents an attempt to simplify and reduce uncertainty in one part of the tort-based civil justice system by assigning absolute liability to employers for the costs of work-related injuries and illnesses sustained by their employees. This liability is limited by schedules of benefits that are designed to compensate injured workers for their medical costs and a portion of their lost wages. The mechanism of workers' compensation insurance allows the employer to predict accident liability "costs" so that they can be incorporated into the price of his product while providing certainty of compensation to the employee who is injured. The social insurance features of workers'

compensation—payments for health care and income maintenance—are bounded by the system's limits on liability: the employer is liable only for those injuries or illnesses "arising out of and in the course of employment." These boundaries have shifted rapidly in recent years, raising issues concerning the correct balance between the system's income protection goals and its safety encouragement and rehabilitation objectives.

Current Data on Workers' Compensation Coverage and Costs

Over the past decade, the workers' compensation system has expanded significantly with respect both to the breadth of coverage and to the level of benefits provided. Spurred by the passage of the Occupational Safety and Health Act (OSHA) of 1970 and the recommendations made by the National Commission on State Workmen's Compensation Laws in 1972, states have revised their laws in many important ways. Changes that have made coverage mandatory rather than elective and that have extended coverage to previously ineligible workers have been accompanied in many states by higher benefit levels and flexible ceilings that allow payments to increase automatically with the state's average weekly wage.¹

Currently, nearly 90 percent of American workers are covered by the workers' compensation laws of each state, the Federal Employees' Compensation Act, the Longshoremen's and Harbor Workers' Compensation Act, the Federal Employers' Liability Act, or the Federal Coal Mine Health and Safety Act.² (The remaining 10 percent of workers are those casual and domestic workers, farm workers, self-employed persons, and state or local government employees who are still excluded from coverage in some states.) These programs provide cash benefits for lost income to workers or their beneficiaries when disability or death results from work-related injury or disease. Benefits for medical care and rehabilitation services are also provided.

The Department of Labor estimates that in 1978 about 7.8 million workers' compensation awards were made. Of these, about 6 million

¹For a detailed review of the provisions of state workers' compensation laws, see Alliance of American Insurers, *Survey of Workers' Compensation Laws*, Chicago, Illinois, January 1, 1979; and Alliance of American Insurers, *National Commission Essential Recommendations: Status of State Compliance*, Chicago, Illinois, January 1, 1979.

²The Social Security Administration estimated that as of 1976, nearly 70 million persons—about 88 percent of the average monthly number of wage and salary workers, including federal employees—were covered by various workers' compensation programs during the year. See Daniel N. Price, "Workers' Compensation Programs in the 1970's," *Social Security Bulletin*, Vol. 42, No. 5, May 1979, p. 3.

were for medical payments. The 1.8 million disability awards included 1.3 million for temporary disabilities and 418,000 for permanent partial disabilities. There were 2600 awards for permanent total disability and 7800 for death benefits. Although awards for permanent disability (partial or total) or death account for only a small fraction of total cases, they represent about three-fourths of all benefit payments. Largely as a result of state reforms, total benefits paid under workers' compensation programs increased from \$3 billion in 1970 to about \$7.6 billion in 1976.³

The total cost of workers' compensation to employers has also increased dramatically, from \$4.9 billion in 1970 to \$11 billion in 1976, and an estimated \$15.8 billion in 1978. Employers' insurance costs include benefit costs plus overhead costs, such as the expenses of policy writing, ratemaking, payroll auditing, claims investigation and adjustment, safety inspection, legal and medical services, and general administration. Insurance carried by a commercial insurer has the additional costs for commissions and brokerage fees, taxes and licenses, and allowances for underwriting profit. Depending on the type of company, administrative expenses (excluding profit) range from about 22 to 30 percent of premiums earned in 1976. The growth in costs reflects the influences of both inflationary effects on wages and extensions of compensation coverage and benefits. The effects of inflation can be largely eliminated by relating employers' premiums to payrolls in covered employment. Using this ratio of cost-to-payroll, we can see that the impact of benefit liberalizations on employers' costs has been substantial: the average premium for workers' compensation insurance increased from \$1.11 per \$100 of payroll in 1970 to an estimated \$1.80 in 1978.⁴

Insurers measure their "costs" in a different way. The insurer's loss ratio is a measure relating benefit payments to premium collections. The ratio of direct losses *paid* to direct premiums written has remained fairly stable in recent decades, with about 60 cents of every premium dollar paid as cash or medical benefits. For self-insurers and government funds the ratio is higher; for private carriers the ratio is somewhat lower.⁵ The more accurate measure of costs for insurance carriers is the loss ratio based on losses *incurred*, which reflects the amount of premium income that must be set aside to cover liability for future payments. The incurred loss ratio is substantially greater than the direct loss ratio and has been increasing at a significant rate in recent

³Price, p. 24.

⁴ASPER estimates based on trend data from Price, pp. 3-24.

⁵The loss ratio based on benefits paid was 69.0 percent for state funds in 1976 and 50.8 percent for private carriers in the same year. Price, pp. 18, 21.

years. This is because, as wages and compensation rates increase with inflation and benefit reforms, greater proportions of premiums collected must be set aside for future benefit payments at higher levels. In 1970, the incurred loss ratio for private carriers—premiums earned in relation to losses (benefits) incurred—was 63.3 percent; by 1976, it had climbed to an estimated 78.7 percent.

After benefits and expenses are paid and incurred liability costs are set aside, private carriers can measure the profitability of a line of insurance by computing a net-gain ratio. This ratio varies substantially for different types of companies whose modes of operation differ. Stock companies, for example, have higher administrative expenses because they sell most of their policies through commissioned agents, and they distribute profits among their stockholders. Mutual companies, on the other hand, sell policies through salaried employees, and they return most of their surplus to policyholders as dividends. The net-gain ratio for workers' compensation insurance has declined in recent years to the point that stock companies showed losses between 1972 and 1976 averaging 4.5 percent of premiums, while mutual companies averaged gains of only 6.3 percent for that period, as compared with 12.5 percent eight years earlier. When this ratio is adjusted by adding investment income and subtracting dividends, stock companies showed a loss of 5.1 percent in 1976, while mutual companies showed a surplus of only 1.6 percent.⁶ While there are some signs that this trend has leveled off since 1976, primarily because insurance rates are beginning to catch up to costs, insurers continue to express concern over their ability to adequately project the costs of a changing workers' compensation system, and to obtain the rates they feel are necessary to cover those costs from the ratemaking agencies.⁷

Recent legislative reforms and judicial interpretations of workers' compensation laws—along with inflation—have increased premium costs to employers and underwriting costs to insurers. More importantly, though, the changing view of the compensation system's boundaries, reflected in expanded coverage and broader definitions of employer liability, has created an atmosphere of uncertainty and of increased litigation that is troubling to workers, employers, and insurers alike. The process of renegotiating those boundaries has engendered debate

⁶Price, pp. 18-19. See also Fred Harwayne, *Restatement of the Consideration of Investment Income in Workers' Compensation Insurance Ratemaking*. National Council on Compensation Insurance, 1978.

⁷The primary workers' compensation ratemaking organization is the National Council on Compensation Insurance (NCCI), which is licensed by state insurance regulators to perform this function in 30 states and the District of Columbia. Thirteen states have independent local rating organizations; six have exclusive state funds; and Texas uses rates promulgated by state authority.

over issues of causation and employer fault, third party liability, compensation adequacy and overlap, and the efficacy of current administrative practices. Much of this debate is based on the underlying tension in the concept of workers' compensation between the principles and goals of liability-based compensation and those of social insurance for health and income maintenance. An understanding of the current state of flux of the workers' compensation system requires some knowledge of the evolution of the compensation principle in this country over the past three-quarters of a century.

History and Background of Workers' Compensation

Several important milestones mark the progress of workers' compensation law from a tort-based system, which shielded employers from nearly all claims, to the current system, which covers most workers and provides for absolute but limited employer liability for work-related injuries and illnesses. The rise of industrialization at the end of the nineteenth century led to reforms in Europe that spread after several decades to American states. The first type of reform took the form of employers' liability laws restricting employers' common-law defenses; the second, which was in place by 1920 in most states, was workers' compensation in a rudimentary and limited form, covering accidental injury in highly hazardous occupations. By 1949, all American states had passed workers' compensation laws that were gradually expanded over the next two decades. In 1969, heightened federal activity led to expanded coverage and the creation of a National Commission to study state laws and make recommendations for reform. Since then, the pace of reform has quickened, and the concepts underlying workers' compensation insurance have begun to change.

The spread of industrialization throughout Europe and the United States during the nineteenth century was accompanied by a sharp increase in the rate of serious on-the-job injuries suffered by workers.⁸ In 1907, the death toll for two U.S. industries alone—railroading and bituminous coal mining—totaled 7000 workers. Common-law remedies for injured employees came to be widely regarded as providing too few incentives for workplace safety and as being unfairly biased toward the employers' interests.

In order to be compensated under American common law, the worker had to prove negligence on the part of his employer by demonstrating

⁸A German study of the years 1886-1894 concluded that job-related injury was seven times as frequent in industry as in agriculture, and that only 6 percent of the injured received any compensation. Cited in California Citizens' Commission on Tort Reform, *Righting the Liability Balance*, Los Angeles, California, September 1977, p. 34.

that the injury was not one commonly associated with the occupation, and that it had resulted from some identifiable and nonhabitual act of negligence by the employer. Obviously, incentives to employers for taking safety precautions were not substantial when this burden of proof was shouldered by employees. Furthermore, the employer had three powerful defenses: (1) *contributory negligence*—recovery was barred if the worker's own negligence could be shown to have contributed at all to his injury; (2) *the fellow-servant doctrine*—the employee could not recover if the injury resulted from the negligence of a fellow worker; and (3) *assumption of risk*—the injured could not recover if the accident was due to an inherent hazard of which he had, or should have had, advance knowledge.⁹

During the last quarter of the nineteenth century, employers' liability laws were enacted in several European countries and in most of the American states to temper court-made negligence doctrine by restricting the employer's legal defense. Even with these modifications, recovery under the tort-based compensation system was inadequate, inconsistent, uncertain, slow, administratively expensive, and disruptive of employer-employee relations. By 1884, Germany had enacted a compensation plan that established a Sickness Fund for injured workers, supported by the compulsory contributions of both employers and employees. Great Britain's Workmen's Compensation Act of 1897 differed from the German plan by placing the responsibility for compensation exclusively with the employer, who was permitted to carry insurance with private companies. By 1908, compensation acts had been passed by virtually all the Western industrialized nations except the United States.

The workers' compensation "bargain" struck in these early statutes provided employees with the right to compensation for work-related injury without recourse to the courts and without proof of fault, while affording employers the assurance that their liability would extend only to the amounts set in a fixed schedule of benefits. The ground rules that had characterized the tort system's approach to compensation for work-related injuries were changed in important ways by these laws.

The goal of compensation was not to reimburse the injured worker for all of his losses but to "tide him over" until he could return to work.

⁹For a discussion of employees' legal remedies prior to and outside of the workers' compensation system, see Wex S. Malone, Marcus L. Plant, and Joseph W. Little, *The Employment Relation: Cases and Materials*, West Publishing Co., St. Paul, Minnesota, 1974, pp. 1-34. For an argument that common-law doctrines "were not overwhelmingly detrimental to worker interests" and an empirical analysis of turn-of-the-century compensation decisions, see James L. Croyle, "Industrial Accident Liability Policy of the Early Twentieth Century," *Journal of Legal Studies*, Vol. VII, No. 2, June 1978, pp. 279-298.

Thus, the schedule of benefits provided a rehabilitation incentive by replacing only a fraction of lost wages. With respect to economic policy, the concept of liability without fault allocated the direct costs of work-related injuries to the employer not because of a presumption of negligence but because of a desire to treat the inherent hazardousness of industrial employment as a cost of production. The new mechanism discarded the tort system's dual goals of full compensation of the injured and restriction of liability to negligent acts in favor of a new, compound objective: certain but limited liability.

Early federal and state attempts to pass workers' compensation laws in the United States were slowed by court challenges, and judicial interpretations of the federal and state constitutions greatly influenced the eventual shape of the statutes. The U.S. Supreme Court's 1908 reading of the interstate commerce clause precluded the passage of a federal compensation law for most private industry, and a 1911 decision by New York's Court of Appeals rejected compulsory coverage on the ground that imposing liability without fault was taking property without due process of law. As a consequence of contemporary constitutional interpretations, the workers' compensation laws passed by all but six states between 1911 and 1920 generally authorized elective coverage and applied mainly to certain highly hazardous occupations.¹⁰ The present system also retains the imprint of the early judicial rulings in that it is basically state-operated.

James Chelius conducted an empirical analysis of the effects of these early reforms on the incidence of work-related fatalities between 1900 and 1940. His results indicate that the passage of employers' liability laws was associated with a relative decline in the non-motor-vehicle machine death rate. The change from a negligence system to the strict liability approach of workers' compensation was associated with a further relative decline in the incidence of machine deaths. Safety regulations, however, had no significant effect on incidence. Both compulsory and elective workers' compensation systems were associated with relative lower death rates. The analysis suggests that "transaction costs were substantial enough to have influenced the allocation of resources to industrial safety and that, therefore, the structure of the liability system was not irrelevant."¹¹

¹⁰Some states, such as New York and California, amended their state constitutions to allow for compulsory workers' compensation coverage. The Supreme Court held, in 1917, that a compulsory compensation system, at least as applied to "hazardous employment," did not violate the Federal Constitution. *New York Central R.R. v. White*, 243 U.S. 188 (1917). Most states, however, avoided the compulsory compensation approach altogether for many years.

¹¹James Robert Chelius, "Liability for Industrial Accidents: A Comparison of Negligence and Strict Liability System," *Journal of Legal Studies*, Vol. V, No. 2, June 1976, p. 306.

By 1949, all the states had established programs to provide income maintenance protection to workers disabled by work-related injury or illness. For the next two decades, gradual improvements in the programs increased the scope of protection and benefit levels. Nonetheless, in 1968, 23 states still permitted elective coverage, 24 had size-of-firm coverage restrictions, and 29 excluded farm workers from coverage altogether. In 46 states, the benefit ceilings lagged so far behind wage levels that a disabled worker earning the state average weekly wage could not receive a benefit that would produce the legislated wage replacement rate. While some occupational diseases were covered under the statutes, special restrictions on the types of illness covered and amounts of recovery were commonplace.

In 1969, the Federal Coal Mine Health and Safety Act established a federal program of cash benefits to coal miners or their widows for disability or death from black lung, a disease previously excluded from coverage under many state workers' compensation programs. (The Act was later amended by the Black Lung Benefits Acts of 1972 and 1977.) This was the first time a federal program was established to provide coverage for a specific occupational disease. Prior to this time, the federal government had assumed the role of filling limited gaps in coverage for workers who could not legally be covered by state laws through programs established by the Federal Employees' Compensation Act and by the Longshoremen's and Harbor Workers' Compensation Act (LHWCA) of 1927 and its extensions—the District of Columbia Compensation Act, the Defense Base Act, the Outer Continental Shelf Land Act, and the Nonappropriated Fund Instrumentalities Act.¹² The black lung benefits program was intended to be an interim measure, with the states to assume coverage after a set period, later extended by amendment. It may have marked, instead, the initiation of active and ongoing federal involvement in the area of workers' compensation and safety regulation.

The following year, Congress passed the Occupational Safety and Health Act (OSHA) in order "to assure so far as possible every working man and woman in the nation safe and healthful working conditions." The administrative agency created by the Act has since promulgated and sought to enforce several thousand standards covering the physical conditions of about five million workplaces. This Act also created the

¹²The LHWCA (33 U.S.C. § 901 et seq.) covers workers injured on navigable waters and adjoining land areas; the Defense Base Act covers employees of overseas government contractors; the District of Columbia Act covers all private employment in or by employers located in the District of Columbia; the Outer Continental Shelf Land Act covers workers in offshore exploration for extraction of resources; and the Nonappropriated Fund Instrumentalities Act covers civilian employees of PX's, service clubs, etc., on military bases.

National Commission on State Workmen's Compensation Laws to evaluate current programs and make recommendations for improvements.

The Commission comprised of 15 presidentially appointed members representing business, labor, state workers' compensation agencies, insurance carriers, the medical profession, scholars, and the general public. In addition, the Secretaries of the Departments of Commerce, Labor, and Health, Education, and Welfare were designated as Commissioners. In the space of little more than a year, the Commission and its staff reviewed the workers' compensation laws of 56 jurisdictions—the states, territories, the District of Columbia—and the federal laws, and held nine public hearings around the country.

The Commission's efforts resulted in several important publications: a *Compendium on Workmen's Compensation*, a comprehensive review of issues and information concerning the laws; a series of *Supplemental Studies* which examine selected issues in detail; and its *Report*, published in 1972, which discusses numerous recommendations for improving the system. The 19 recommendations considered by the Commission to be essential for the operation of a modern and effective compensation system became the cornerstone of reform efforts throughout the decade. (The recommendations are included in App. A and are discussed generally in succeeding sections of this report.)

As noted above, the states have enacted numerous reforms in their workers' compensation programs in response to the Commission's report. As a further consequence of the report, Congressional hearings have been held and various bills have been introduced proposing federally mandated changes in workers' compensation programs. Each year since 1973, Senators Javits and Williams have sponsored a federal standards bill designed to ensure that the Commission's recommendations are fully adopted by each of the states, although the requirements proposed by these bills have become somewhat less sweeping with each passing year.¹³ In pressing further federally spurred reforms, the proponents of federal standards point to the areas in which state legislation has lagged behind the Commission's recommendations in recent years and cite problems concerning coverage for occupational disease and other issues that have increased litigation around workers' claims.

¹³In 1979, Senators Williams and Javits co-sponsored S.420, which would require all states to meet most of the Commission's 19 essential recommendations, but would, in contrast with the earlier proposals, leave administration of workers' compensation programs much more clearly in the hands of the states. When a state has not been certified as meeting the federal standards, however, the federal government may require employers to cover employees' supplemental claims that are subject to the standards. Although S.420 provided for advisory federal occupational disease guidelines, an amendment offered by Javits would have established mandatory federal standards for the determination of occupational disease.

In 1974, an Interdepartmental Workers' Compensation Task Force was established to pursue issues raised by the National Commission. The Task Force evaluated the states' progress in meeting the essential recommendations and examined other emerging issues.¹⁴ Among these were interrelationships among workers' compensation and other social insurance programs, costs of and reasons for litigation of claims, and proposals for improving state administration of workers' compensation programs.

THE CURRENT STATUS OF WORKERS' COMPENSATION LAWS

The National Commission articulated five commonly accepted objectives of a modern workers' compensation system: (1) broad coverage of employees and of work-related injuries and diseases; (2) substantial protection against interruption of income; (3) provision of sufficient medical care and rehabilitation services; (4) encouragement of safety; and (5) an effective delivery system for benefits and services. This statement of objectives and the accompanying recommendations for their implementation have shaped reform efforts and debate since then. A Department of Labor scorecard evaluating states' compliance with the Commission's recommendations as of January 1979 is included in App. A. This section is organized around the five major objectives and describes generally the types of provisions common to the various state laws as well as relevant judicial interpretations of the provisions.

Coverage

One set of concerns relating to the breadth of coverage provided by workers' compensation surrounds the exclusion from coverage of workers in particular occupations or in firms eligible for exemptions under some state laws. A second set of concerns involves the determination of compensability of a given injury or illness based on its work-relatedness. Such a determination requires showing causation in the work setting, a showing that is particularly troublesome in the case of occupational disease claims. This subsection traces the genesis of current conflicts over the appropriate definition of a compensable injury and

¹⁴See Interdepartmental Workers' Compensation Task Force, *Workers' Compensation: Is There a Better Way?* U.S. Government Printing Office, Washington, D.C., January 1977.

discusses the implications of the various approaches to resolving these coverage issues.

Although all but three states have compulsory coverage laws, exemptions are often available for firms employing fewer than a set number of workers in certain occupations such as logging, sawmilling, and farming. Some state laws also exclude other classes of workers, such as government employees and employees of charitable organizations. Most states do not cover casual and domestic workers.¹⁵ The proportion of the workforce covered varies widely among states. In 1976, 26 states and the District of Columbia covered more than 85 percent of their workforce, while five states covered less than 70 percent.¹⁶ Most Southern states and some North Central farming states cover proportionately fewer workers than other states. In the states where coverage is not mandatory, employers who reject coverage are denied their three common-law defenses in tort suits.

The determination of compensability is perhaps the most troublesome and most frequently litigated aspect of workers' compensation. All states limit, in the same or similar language, compensable injury or illness to that "arising out of and in the course of employment." The requirement that a compensable disability "arise out of" the worker's employment involves assessing the character or source of the risk that has resulted in injury or illness. The risk must be present as a condition of the job task or work environment. Determining whether a disability occurred "in the course of" employment requires knowing the time, place, and nature of the mishap: the employee must be injured in a job-related activity. These two criteria for determining compensability are often intertwined.

Determining whether a worker's disability "arose" from his employment is easy when the risk resulting in injury or death is a normal part of the employee's work. However, when the injury is not a normal risk of the employment, courts have applied several tests to determine whether the link between the injury and the claimant's job is close enough to permit compensation. The test of the generally accepted "positional risk" doctrine is whether the employee is exposed to the danger that results in injury by reason of his job-related assignments.

¹⁵Regarding coverage, courts in many states have been asked to define what constitutes an employment relationship, what determines "casual" employment, and what is the status of an employee who holds stock in the enterprise for which he works. A review of the case law salient to these questions can be found in Malone, Plant, and Little, pp. 70-129. The National Commission recommended mandatory coverage for all occupations and industries, including government, and recommended that the term "employee" be defined as broadly as possible so that all doubts would be resolved to favor coverage.

¹⁶It is estimated that in 1977, 793,000 employees lacked coverage because of the exclusions of small firms, 541,000 because of agricultural exemptions, and 902,000 because they were household workers. Interdepartmental Workers' Compensation Task Force, *Workers' Compensation*, p. 5.

In other words, "it is sufficient that the work brings the claimant within the range of peril by requiring his presence there when it strikes."¹⁷ For example, injuries were deemed compensable in three separate cases in which employees whose jobs required them to be on the streets were hit by a car, a stray bullet, and a roving owl, respectively. When the claimant's activities at the moment of injury are less clearly job-related, he must generally show that his employment exposed him to increased risk of injury. If an employee engaged in an apparently non-job-related activity, such as eating, drinking, smoking, or driving a car, and can demonstrate that the injury was causally enhanced in some way by the duties of the employment or the work environment, the injury may be compensable.¹⁸ When injury is caused by assault on the job premises, the decision to award compensation generally turns on the nature of the dispute leading to the assault.¹⁹

The requirement that a compensable injury be sustained "in the course of" employment is satisfied when the activity being pursued, on or off the job site, is clearly related to the performance of the claimant's job. In accidents occurring off the employer's premises, the employee must generally show that he was engaged in furthering the employer's business or was acting at the employer's order or direction at the time of injury.²⁰ If activities at the time of injury are not clearly job-related, the "personal comfort" doctrine may apply. This doctrine allows compensation for injuries incurred during activities that, although relating to the personal comfort or well-being of the employee, also benefit the employer. Activities during lunch hour, recreation, or rest periods on the job site are generally presumed to benefit the employer because they aid in the employee's efficient performance. On the other hand, acts that effectively constitute a temporary abandonment of employment are not protected.²¹

¹⁷*Industrial Indem. Co. v. Industrial Acc. Comm.*, 95 Cal. App. 2d 443, 214 P.2d 41 (1950). The positional risk doctrine has been used to justify recovery in cases where the employee was injured on the streets in the performance of his job or at the worksite by acts, including horseplay, of fellow employees. For further discussion of the extent and limits of the doctrine, see Arthur Larson, "The Positional-Risk Doctrine in Workmen's Compensation," 1973 Duke L.J. 761; and Wex S. Malone, "The Limits of Coverage in Workmen's Compensation," 51 N.Car. L. Rev. 705 (1973).

¹⁸Personal risks and risks imported into the employment for the employee's personal convenience and pleasure (such as cars, food, or hunting rifles) have been variously treated by courts. See Malone, Plant, and Little, pp. 218-225.

¹⁹When the nature of the job or the working environment increases the risk of assault, compensation is usually awarded. If the motive for the assault can be attributed to causes arising from the employment—as opposed to purely personal animosities—compensation is generally awarded. When the assault is personally motivated, but the working environment enhances the opportunity for assault or otherwise plays a causal part, judgments vary considerably from state to state. See Malone, Plant, and Little, pp. 225-234.

²⁰*Taylor v. Ewing*, 166 Pa. Super. 21, 70 A.2d 456 (1960); also *Harry Fleming Washer Serv. v. Industrial Acc. Comm.*, 36 Ill. 2d 272, 222 N.E.2d 490 (1967).

Several statutory provisions may affect the compensability of accidental injuries. Many states bar compensation if the worker was engaged in "willful misconduct" at the time of the accident,²² if the employee was the aggressor in an assault,²³ or if the employee willfully failed to obey a safety regulation or to use a safety device furnished by his employer.²⁴ Over half the states provide a statutory defense to the employer if the worker was intoxicated at the time of injury.²⁵ If the employer is guilty of violating safety rules or of "serious and willful misconduct," the amount of compensation to an employee injured as a result of such actions may be increased.²⁶

These kinds of statutory provisions have so far prevented any total divorce of workers' compensation from the principles of tort law. Indeed, it is the tension between the view of workers' compensation as a liability-based mechanism for allocating accident costs and the view that it acts as a social insurance mechanism that gives rise to the divergent responses of legislatures and courts to questions of compensability. This tension has increased in the area of coverage for occupational diseases.

²¹*State Compensation Ins. Fund v. Workmen's Compensation Appeals Bd.*, 67 Cal. 2d 925, 64 Cal. Rptr. 323, 434 P.2d 619 (1967); see generally, Comment, "Workmen's Compensation: The Personal Comfort Doctrine," 1960 Wis. L. Rev. 91.

²²In 18 of the compensation statutes, willful misconduct of the employee affords the employer an affirmative defense. The term "willful" has been strictly construed by the courts. It is usually limited to deliberate exposure to danger and excludes instinctive behavior or bad judgment.

²³Twenty-three states, the Longshoremen's and Harbor Workers' Compensation Act, and the Federal Employees' Compensation Act exclude injuries resulting from "willful intention to injure another." There is currently a strong judicial trend toward discarding the aggressor doctrine. *State Compensation Ins. Fund v. Industrial Acc. Comm.*, 271 Minn. 333, 135 N.W.2d 746 (1952). In *Mathews v. Workmen's Compensation Appeals Bd.*, 17 Cal. App. 3d 1083, 95 Cal. Rptr. 477 (1971), a California court of appeals held that an attempt by the California legislature to exclude coverage for "aggressors" was beyond the legislature's power under the state constitution.

²⁴An employee's unreasonable failure to observe safety rules or to use safety devices (one or the other or both) can be used in an employer's defense in almost half of the states. In some, violation bars all compensation recovery; in others, it reduces compensation by 10 to 15 percent.

²⁵Proof of intoxication may result in compensation being either barred or reduced, depending on the state. The major difference among the statutes is the extent of causal connection required between the intoxication and the injury in order for the defense to be available to the employer.

²⁶Several states increase the employee's compensation when his injury results from the employer's failure to follow safety rules. California law requires an increased award if the worker's injury resulted from "serious and willful misconduct" of the employer. The conduct necessary to invoke the penalty must be more than gross negligence; it must be of a "quasi-criminal nature, the intentional doing of something either with the knowledge that it is likely to result in serious injury, or with a wanton and reckless disregard of its possible consequences." *American Smelting & Ref. Co. v. Workers' Compensation Appeals Bd.*, 79 Cal. App. 3d 615, 144 Cal. Rptr. 898 (1978).

Initially, workers' compensation laws were not designed to cover occupational disease, which was commonly considered more appropriately covered by health insurance. Partly because defining the source of a disease was (and is) difficult and partly because safety technology did not extend to disease prevention strategies, compensation at that time was generally restricted to cases of "injury by accident" or "accidental injury." Gradual liberalization of this requirement took place when diseases were recognized as incidental to employment and it became clear that workers disabled by disease were forced to sustain without compensation the same economic burden as those disabled by accident.

While all 50 states now provide coverage for occupational disease, numerous limitations on compensability exist. Many states, for example, provide full coverage only for those diseases "peculiar to the worker's occupation"; others exclude "ordinary diseases of life" even when such a disease might be shown to have occurred as a result of specific workplace conditions. Most states exclude infectious diseases. Nearly three-quarters of the states have "by accident" clauses that are applied to occupational diseases. These clauses require that the illness result from an unexpected event or exposure. Some states require that the toxic materials or working conditions that cause a disease must be solely or completely responsible for its onset. Many states limit occupational disease claims with rules relating to the duration and/or recency of exposure and with provisions specifying time limitations for filing claims and manifesting the disease. The net effect of these limitations is that, by most accounts, only a tiny fraction of occupationally related disease cases enter the workers' compensation system. Those that do are the subject of lengthy contest, and they are typically resolved by "compromise and release" settlements.²⁷

In some states, rebuttable presumptions *supporting* compensability—presumptions that for certain occupations, specific diseases are job-related—have been developed, which may aid claimants in establishing causality. On the other hand, eight states have rebuttable and ten states irrebuttable presumptions *against* compensability when minimum exposure to hazard cannot be shown. In cases where causation of an illness is in question, courts have tended to favor claims where the

²⁷For detailed accounts of the handling of occupational disease claims by the workers' compensation system, see Interdepartmental Workers' Compensation Task Force, *Proceedings of the Interdepartmental Workers' Compensation Task Force Conference on Occupational Diseases and Workers' Compensation, 1976*, prepared by the Subcommittee on Labor and Public Welfare, U.S. Senate, and the Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., 1976; and U.S. Department of Labor, *Interim Report to the Congress on Occupational Diseases*, U.S. Government Printing Office, Washington, D.C., December 1979, pp. 65-78.

risk of contracting the ailment is greater for a particular employment than for the general public. Courts in many jurisdictions have also seized on the common legislative instruction that compensation statutes be liberally construed to allow recovery where causation is not entirely certain.

When injury or illness results not from a single, identifiable event or mishap but from causal conditions that have operated over a long period of time, courts have awarded compensation based on the "repeated trauma" or "cumulative injury" doctrine. This doctrine evolved prior to inclusion of occupational diseases in compensation laws as a means of permitting recovery under statutes that required a showing of injury by accident.²⁸ Repeated exposure to identifiable toxic conditions and constant use, strain, or striking of a part of the body that eventually becomes disabled are the kinds of situations that have been held to constitute cumulative injury.

Recent court decisions have tackled more problematic claims of cumulative trauma in which the impairment suffered or the causal agent may not involve an identifiable physical injury or exposure, but a condition of reduced health that may result in part from natural aging or other non-work-related causes and in part from conditions of the workplace. Among cases of this type are stress-related mental and physical impairments ranging from chronic nervousness and neurosis²⁹ to stroke and heart attack.³⁰

²⁸Basically, the theory holds that each of the repetitive events contributing to the injury day by day constitutes an accident, and that when the effects are manifested on a given day, the last trauma is the accident that caused the injury. For annotations treating the emerging theory, see "Gradual occurrence of bruise or other traumatic injury or condition as accident within Workmen's Compensation Act," 122 A.L.R. 839 (1939); "Injury from fumes or gases as accident or occupational disease within the meaning of the compensation statutes," 6 A.L.R. 1466 (1920), 23 A.L.R. 335 (1932), and 90 A.L.R. 619 (1934).

²⁹Courts in a number of states have long awarded compensation in cases of "traumatic neurosis" where a work-related shock or physical trauma causes a disabling mental or nervous disturbance to occur soon thereafter. Over the past 20 years, compensation has been awarded in some few states for disabling mental or nervous disorders caused by the constant stress of an anxiety-producing work situation. See, for example, *Carter v. General Motors Corp.*, 361 Mich. 577, 106 N.W.2d 105 (1960) (psychosis caused by emotional pressures produced by production line employment); "Workmen's Compensation Awards for Psychoneurotic Reactions," 70 Yale L.J. 1129 (1961). Among the compensated cases is that of a firefighter in California who developed a neurosis because of his anxieties over his work.

³⁰Workers' compensation boards and the courts have wrestled with heart cases for many years, with mixed results. The original approach, still used in some states, was to grant compensation only if the heart failure had been caused by an "accident." See, for example, *Mellen v. Industrial Acc. Comm.*, 19 Utah 2d 373, 431 P.2d 798 (1967); *Bussone v. Sinclair Ref. Co.*, 210 Pa. Super. 442, 234 A.2d 195 (1967). Another approach, now discarded by many of the states that have used it, is the "unusual strain" rule which permits compensation only if the attack or collapse occurs while the claimant is engaged in work more stressful than his ordinary task. Application of the unusual strain rule can

In cases such as these, the establishment of causation is critical to the determination of compensation. It is a well-established principle of compensation law that the employer "takes the employee as he finds him," that is, with his existing physical or mental weaknesses, predispositions, and susceptibilities.³¹ Thus, when a latent or weakened condition is exacerbated by a compensable injury, full compensation for the resulting death or disability is awarded.³² Courts that do not apply an "unusual strain" test for determining the compensability of an injury such as a heart attack have defined a causal relationship as existing when work activities contributed to the disability to "some material degree," "an appreciable degree," or when the activities required "an exertion capable of medically helping the attack—of furthering its progress."³³

Definitions of occupational disease and the scope of coverage for various disabilities are currently in a state of flux. Recent awards of compensation to a meter maid whose work involved walking on hard pavements and who developed a foot condition, a bakery's porter who developed asthma, and a person who regularly drove an automobile in her work and developed phlebitis, all suggest a loosening of the limits that disallow benefits for ordinary diseases of life. Whether this kind of liberalization is likely to, or should, continue is the subject of a wide-ranging debate.

The future handling of occupational disease and cumulative trauma claims may well have broad implications for the scope of workers' compensation coverage in general. Diseases such as heart disease, respiratory disorders, cancer, mental and emotional disorders, and others pose extremely difficult conceptual and empirical problems in establishing a relationship between the disability and the conditions that caused it. These cases challenge the application of the no-fault concept

be found in *Lewter v. Abercrombie Enterprises, Inc.*, 240 N.C. 399, 82 S.E.2d 410 (1954); *Taylor v. Department of Labor and Industries*, 69 Wash. 2d 19, 416 P.2d 455 (1966); *Jasinski v. Ginley-Soper Constr. Co.*, 170 Colo. 52, 458 P.2d 754 (1969). States that have abandoned the doctrine include New Jersey, Michigan, and New York. See *Ciuba v. Irvington Varnish & Insulator Co.*, 27 N.J. 127, 141 A.2d 761 (1958); *Coombe v. Penegor*, 348 Mich. 635, 83 N.W.2d 603 (1957); *Jackson v. Board of Education of Watertown*, 12 A.D.2d 542, 206 N.Y.S.2d 737 (1960).

³¹*Colonial Ins. Co. v. Industrial Acc. Comm.*, 29 Cal. 2d 79, 172 P.2d 884, 887 (1946).

³²Citations for numerous holdings that follow this principle can be found in Malone, Plant, and Little, p. 343.

³³*Dwyer v. Ford Motor Co.*, 36 N.J. 487, 178 A.2d 161 (1962). See also the test proposed by Larson in "The 'Heart Cases' in Workmen's Compensation: An Analysis and Suggested Solution," 65 Mich. L. Rev. 441, 470 (1967). Larson's proposal would require a showing of unusual strain, i.e., exertion greater than that normally present in the nonemployment life of most persons, only for claimants with a past history of heart trouble. For other claimants, "any exertion connected with the employment and causally connected with the collapse as a matter of medical fact would be adequate to satisfy the legal test of causation."

that underlies the compensation system. Although technically they do not require a determination of *who* is at fault, they inevitably raise questions of *what* is at fault in the contraction or manifestation of the disease.

While courts have generally stopped short of awarding compensation for the effects of the degenerative diseases of life without a showing of some work-related cause, the steady tendency toward widening the limits of coverage under occupational disease provisions or statutes has led to reevaluation of the goals of the system. Those who emphasize the social goals of the system advocate more liberal coverage of occupational diseases and less rigorous standards of proof. Others agree with the Alliance of American Insurers that efforts to expand the "ever-swelling scope" of the compensation system threaten its continued viability and should be resisted. The Alliance warns that:

Destroying the relationship between disability and employment in the long run will destroy the rationale of the compensation system itself. When that rationale is gone, the financial incentive for loss control will go with it.³⁴

The impact on the compensation system of increased openness to occupational disease claims will depend in large part on how occupational diseases are ultimately defined. Until some consensus is reached, first within the medical community and then within the public policy arena, on what criteria should be used to determine the job-relatedness of various illnesses, the full extent of the occupational disease "problem" cannot be assessed. Even with the emergence of clear criteria, insurers and employers will face the uncertainties associated with reserving funds for unknown health threats. Whatever the proper estimate of the extent of occupational disease is, however, it is clear that the compensation system will have to expand considerably if it is to meet the demands posed by an increasing acceptance of these cases. Peter Barth estimates, for example, that if only 2 percent of all cancer fatalities were determined to be job-related, the number of death awards handled each year by the workers' compensation system would nearly double. If only 1 percent of all cardiovascular fatalities were determined to be occupationally caused, the total volume of death claims now awarded annually under state workers' compensation laws would triple.³⁵

³⁴Alliance of American Insurers, "Workers' Compensation: The Claims Dollar Under Pressure," *Journal of American Insurance*, Vol. 53, No. 2; Alliance reprint, Chicago, Illinois, January 1979, p. 5.

³⁵See remarks by Peter S. Barth in *Proceedings of the Chief Executive Officers Workers' Compensation Conference*, Airlie, Virginia, June 7-9, 1978, pp. 213-237.

The litigation that characterizes current handling of most occupational disease claims may be one way of forcing adjudicators to arrive at generally applicable criteria and standards for determining compensability in this area. However, this approach to reducing long-run uncertainty is hampered, at least in the short run, by the disparate perspectives of legislatures, administrative bodies, and courts within and across states. Other proposals for resolving the issue are being considered, including the establishment of federal standards for determining occupational disease, and the removal of the occupational disease category from workers' compensation entirely. Instead, it is proposed that such cases be handled through federal or state programs like the Black Lung Benefits Acts and California's public fund for victims of asbestosis, or through a national system of health insurance and income maintenance.³⁶

Income Protection

The objective of providing injured workers substantial protection against interruption of income involves problems of establishing equitable benefit levels. In cases of *total* disability, the wage replacement rate—i.e., the proportion of lost wages to be reimbursed—is meant to ensure the recuperating worker an adequate income level without removing incentives for personal safety and rehabilitation. The tension between these goals creates conflict over what constitutes the "optimal" wage replacement rate. In cases of *partial* disability, compensation is meant to reimburse the worker either for actual wage loss or for loss of wage-earning *capacity*. The establishment of permanent partial disability levels is particularly troublesome owing to the difficulty of assessing loss of wage-earning capacity independent of actual wage loss. This subsection discusses the problems and issues associated with the setting of benefit levels for various kinds of disabilities, especially the controversial case of permanent partial disabilities.

Income benefits under workers' compensation are of two kinds: (1) *impairment benefits*—which are paid to a worker with an impairment caused by a work-related injury or disease whether or not the worker experiences a wage loss, and (2) *disability benefits*—which are paid when an employee has impairment *and* wage loss due to a work-related injury or disease. The amount and duration of disability benefits are determined by the degree of the disability (partial or total) and by its duration (temporary or permanent). Impairment benefits are awarded

³⁶For a review and discussion of these proposals, see U.S. Department of Labor, pp. 98-108.

only in the case of permanent partial disability when the impaired worker is expected to suffer a loss of wage-earning *capacity* even when actual or proportionate wage loss does not occur.

Disability benefits are usually awarded for a certain number of weeks according to a specified proportion, usually two-thirds, of the employee's wage loss. The statutes often set minimum and maximum dollar amounts for the weekly payments, and many set a maximum number of weeks that the payments may continue. In some states the maximum weekly benefit varies according to the number of the employee's dependents. Payments are received only after a specified waiting period (typically three to seven days) but may be retroactive if the disability lasts more than a certain number of days.

In 1972, the National Commission on State Workmen's Compensation Laws recommended that temporary and permanent total disability benefit levels be based on a replacement rate of at least $66\frac{2}{3}$ percent of the employee's gross weekly wage (or 80 percent of spendable earnings) and that maximum benefit levels—that is, benefit ceilings—be increased to $166\frac{2}{3}$ percent of the state average weekly wage by 1979 and 200 percent by 1981. Thus, workers earning more than the state average weekly wage would be able to recoup a larger share of their lost wages than they can with current benefit ceilings, which prevent them from receiving the legislated wage replacement proportion. In addition, the Commission recommended reducing waiting periods to no more than three days and time elapsed for retroactive benefits to no more than 14 days. Although virtually all states have increased benefit levels since 1972, few have liberalized ceilings to the extent recommended by the Commission. The responses of the states to each of the Commission's essential recommendations are shown in App. A.

In 1974, the Federal Interdepartmental Policy Group, appointed to review the Commission's recommendations, published a *White Paper on Workers' Compensation*, which added a recommendation that states tie workers' compensation benefits for long-term disability or death to increases in the cost of living. Only 15 states have enacted such provisions, and they vary widely as to the types of benefits adjusted and the formulas used in computing the adjustments.

The above discussion indicates that the calculation of benefits under workers' compensation laws differs from the calculation of awards made in successful tort actions in important ways. Workers' compensation payments are not "damages" for injury. Full compensation for actual or expected wage loss is not granted, nor are the effects of inflation commonly taken into account. Likewise, compensation for pain and suffering and other general damages (e.g., loss of consortium, loss of personal services) is not available. The intent of compensation laws is quite different from that of tort law; workers' compensation

aims to provide a partial recompense to the employee for the loss of earnings or loss in ability to compete in the labor market while providing incentives for a return to work. However, the incentive rationale does not explain limitations on death and permanent total disability benefits. Obviously, benefit levels are also—perhaps primarily—determined by other considerations such as market forces, incidence levels, estimates of the costs that different benefit levels will impose upon employers, and the availability of disability and life insurance in the private market.

An important consideration in the setting of temporary and partial disability benefit levels is the effect that changes in benefit levels and terms can have on the utilization of the system. Increases in benefit levels may lead to increased reporting of claims in various categories, thus changing incidence levels upon which insurance rates are based. Insurance industry representatives claim, for example, that the increases in benefit levels spurred by the Commission's recommendations resulted in higher utilization rates and different utilization patterns, thus imposing far greater costs upon the system than the Commission had anticipated.

Recent studies conducted by the insurance industry have confirmed that increases in state workers' compensation benefits have been accompanied by greatly increased numbers of lost time claims and lengthened duration of disabilities.³⁷ A General Accounting Office study of the Federal Employees' Compensation Act indicated that the number of lost time traumatic injury claims by federal civilian employees increased from 12,000 in 1974, the year in which benefit levels under that Act were increased by Congress, to an estimated 101,000 in 1979, while the size of the federal workforce remained stable. The report also suggested that disability payments, because they are not taxable, may exceed "take-home pay" for about one-third of employees receiving benefits under that Act, thus providing substantial disincentives for return to work.³⁸

The determination of an optimal wage replacement rate for disability benefits is critical to achieving the stated goals of the workers' compensation system. While benefit levels that are too generous may invite program "abuses" of various kinds (and, some would argue, may increase incentives for workers to take unreasonable risks), less than optimal benefit levels provide too few incentives for employers to pur-

³⁷See Alliance of American Insurers, "Workers' Compensation: A Balanced State System versus Costly Federal Regulatory Standards," Statement before the Senate Committee on Labor and Human Resources on S.420, Chicago, Illinois, April 2, 1979, pp. 13-16.

³⁸See Andre Maisonnier, "Workers' Compensation: Adequacy and Affordability, The Possible Dream," presented at the CPCU Annual Meeting, September 12, 1979, p. 7.

sue accident prevention activities and may encourage workers to seek ways of either supplementing their payments through other social insurance programs or "opting out" of the compensation system altogether in order to file a tort action instead. Opportunities and incentives for injured workers to look beyond the compensation system for recovery of income and other losses raise a number of sticky issues. These issues, which relate to third party negligence (including product liability actions), overlap of programs, and rehabilitation and safety incentives, greatly influence the magnitude and allocation of accident costs, and are discussed later at greater length.

Perhaps the most controversial type of benefit payment is that awarded for permanent partial disability. A worker who has an injury that disables him but does not prevent him from performing substantial gainful work is considered to have a partial disability. If no wage loss occurs, the worker is eligible for impairment benefits, which are meant to compensate him for the attenuation of his wage-earning capacity. If the injury results in his inability to continue in his current work, he will receive disability benefits in lieu of or in addition to his impairment compensation. Certain types of permanent partial disability, such as the loss or loss of use of a limb, are covered specifically in many statutes as "scheduled injuries" for which the law designates a certain amount of compensation. For example, the loss of a thumb entitles a worker to a set amount of compensation regardless of the worker's occupation or the effect of the loss upon his ability to work. If the disability is not specifically described in the statute, it is considered a nonscheduled injury. In this case, compensation is based on the nature of the injury, the occupation of the injured worker, and the effect that the injury has on his ability to compete in an open labor market, i.e., his wage-earning capacity. All states except California use both bases for awarding partial disability benefits, although the types of injuries covered by schedule vary from state to state. California uses no fixed schedule of benefits, determining compensation amounts on a case by case basis.

The National Commission found permanent partial benefits to be the most expensive portion of the compensation system, accounting for more than half of all benefit payments. The Commission also found that "for no other class of benefits are there more variations among the States or more divergence between statutes and practices."³⁹ The Commission attributed some of the many problems to the facts that scheduled benefits are unrelated to actual wage loss, while nonscheduled disability payments permit considerable discretion for

³⁹National Commission on State Workmen's Compensation Laws, *Report* U. S. Government Printing Office, Washington, D.C., July 1972, p. 66.

decisionmakers, including agency adjudicators and the courts.⁴⁰ A scheduled injury, such as the loss of a finger, results in a predetermined payment, regardless of the effect of that injury on wage-earning capacity. A pianist and a construction worker, whose wage-earning capacities are differently affected by such loss, would receive the same amount of compensation. In a state where the injury was nonscheduled, a determination of the extent of disability would depend on estimates of lost wage-earning capacity, estimates which can vary widely.

Inconsistencies and poor matching of benefits to wage loss seem to result partly from the differential treatment of scheduled and non-scheduled injuries, the frequent inappropriateness of scheduled payments, and the use of a single formula for determining both impairment and disability benefits. Liberal evaluation of the extent or possible consequences of impairment may have occurred because the statutory benefits in some states are so low, and because most states estimate future wage losses at the time of the injury rather than paying benefits on the basis of actual wage loss as it develops over an extended period. Awarding workers' compensation benefits without reference to impairment of earning capacity in cases of disfigurement or loss of body function poses further theoretical and practical problems.⁴¹ The National Commission found the problems surrounding partial disability benefits so complex and "intractable" that it recommended a special followup commission be appointed to evaluate more uniform and equitable approaches to determination of permanent partial benefits.

While no definitive solution for the handling of permanent partial disability benefits has emerged since the Commission threw up its hands in 1972,⁴² the benefit levels for such disabilities have increased

⁴⁰The key to determining disability in the workers' compensation field is measuring the extent to which the injured employee has lost his wage-earning capacity. Lost capacity can be manifested either "by inability to perform work obtainable, or inability to secure work." *Black Mountain Corp. v. McGill*, 292 Ky. 512, 166 S.W.2d 815 (1942). Furthermore, actual earnings after a compensable accident are not the sole basis for determining an award for partial disability; the real test is ability to earn, which may extend to the ability of the impaired worker to compete in the labor market in his special occupation. *Zeringue v. Liberty Mut. Ins. Co.*, 248 So. 2d 83 (1971). Thus, compensation may be awarded in cases where a worker's earnings after the injury are equal to or greater than his earnings prior to the injury. When statutes are silent on whether scheduled benefits may be supplemented after payment of a lump sum and the expiration of the scheduled period, courts have begun to favor "dual" payments, that is, the award of both scheduled and nonscheduled benefits. *Van Dorpel v. Haven Busch Co.*, 350 Mich. 135, 85 N.W.2d 97 (1957); *Alaska Indus. Bd. v. Chugach Elec. Ass'n*, 356 U.S. 320, 78 S. Ct. 735 (1958).

⁴¹Awards of this type amount in many cases to awards for damages and as such, according to Larson, "cannot be accommodated to the underlying theory of compensation law." Arthur Larson, *Law of Workmen's Compensation*, Vol. 2, § 58.32, 65.30 (1970 ed.).

⁴²The Interdepartmental Workers' Compensation Task Force proposed in 1977 that

in many states, along with those for total disability. Insurance industry representatives have frequently voiced alarm over the inconsistent handling and rising costs of permanent partial disability claims, urging legislative and judicial restraint, particularly in the case of injury which does not necessarily interfere with the worker's wage-earning ability. Permanent partial disability cases continue to present such problems as inappropriate payments for the level of disability, great frequency of contested claims, and numerous compromise and release settlements.

Florida has attempted to address some of the problems associated with permanent partial disability cases by adopting a system of compensation based almost entirely upon actual wage loss. Under the law which became effective during 1979, workers injured on the job do not receive compensation beyond the time they are off work (except in three extreme cases of impairment) unless they can prove their injury has caused them to lose wages in their post-injury work. State officials claim that the new provisions have drastically reduced permanent partial disability claims, costs, and litigation; meanwhile, the constitutionality of the law is being challenged in court. The Florida experiment, however it evolves, will be worthy of further study as one of the boldest alternative approaches yet devised to handle these types of claims fairly and efficiently.

Medical Care and Rehabilitation

Financing medical care for injured workers is an objective of the workers' compensation system which, by most accounts, seems to have been achieved with reasonable success. All statutes now provide for immediate medical care to injured workers, whether or not work is interrupted.⁴³ Almost all states have removed time or money

benefits for permanent partial disability be tied directly to wage loss and be paid as such loss accrues. See Interdepartmental Workers' Compensation Task Force, *Workers' Compensation*, pp. 14-15. A 1978 study by John Burton, sponsored by the National Science Foundation, examined the handling of permanent partial disability cases in three states. Burton concluded that the benefits in these cases were adequate and that, contrary to popular belief, minor injuries were generally not overcompensated. However, the benefits were poorly matched to wage loss for certain categories of workers. The administrative and legal costs of delivering benefits were found to be much higher in California and Florida than in Wisconsin. See remarks by John Burton in *Proceedings of the Chief Executive Officers Workers' Compensation Conference*, Airlie, Virginia, June 7-9, 1978, pp. 246-249.

⁴³This care includes first aid treatment, services of a competent physician, surgical and hospital services, nursing, and all necessary medical drugs, supplies, appliances, and prosthetic devices.

It may also include psychiatric treatment. *Hardware Mut. Casualty Co. v. Sutton*, 197 So. 2d 502 (Fla. 1967).

limitations on the payment of medical or physical rehabilitation expenses and have extended the right to such benefits without regard to the amount of time elapsed since the injury-causing accident.

Disputes concerning medical benefits involve the kinds of therapy or treatments that can be paid for under workers' compensation, who can provide reimbursable treatment or services, and what can be considered adequate, acceptable treatment (and cost for treatment).⁴⁴ In a slight majority of states, the employee may select his own physician. Elsewhere, the employer or insurance carrier has a right to designate the physician; some large employers provide medical care directly. When private physicians are used, compensation may be limited to the "going rate" for services performed, and the medical bill may be subject to review and approval by the state administrative agency.

The workers' compensation system has dealt much less successfully with problems of physical and vocational rehabilitation. In many states, no formal mechanism exists within the workers' compensation system for ensuring the delivery of rehabilitation services to injured workers. State departments of vocational rehabilitation, funded largely by federal money and often associated with state education programs, typically have little connection with the state workers' compensation agency. Although some vocational services are provided by employers and insurers, a large proportion of injured workers who could benefit from rehabilitation services do not receive them.⁴⁵ When the responsibility for screening and referring workers to rehabilitation services is not assumed by a specific division of the state agency, the provision of such services seems to be haphazard at best. As of 1972, only 26 states had a rehabilitation division within their workers' compensation agency. The National Commission recommended that each workers' compensation agency establish a rehabilitation unit, that employers pay the full costs of vocational rehabilitation and provide maintenance benefits during the period of rehabilitation, and that each state have a broad and well-publicized second-injury fund.

⁴⁴Initial restrictions on the types and sources of reimbursable medical care have gradually been eliminated by the courts. In some states, medical care can now be provided by nonconventional physicians, such as osteopaths; nursing services provided by relatives can be paid for through the system; and medical therapy may include more than pills and bandages, e.g., it may include winters in Florida. (See *Levenson's Case*, 346 Mass. 508, 194 N.E.2d 103 (1963).) The policy issue involved in choice of physician is discussed in Earl Cheit, *Injury and Recovery in the Course of Employment*, John Wiley and Sons, New York, 1961, pp. 48-60.

⁴⁵A four-state survey of workers' compensation cases closed in 1973, conducted by Cooper and Company for the Interdepartmental Workers' Compensation Task Force, included interviews with 251 persons with permanent disabilities who had been advised that they needed rehabilitation. Of these, only 101 persons got such help, and only 81 were assisted by the state vocational rehabilitation agency, the carrier, or the employer. Only 17 received any job training, and only 9 received placement assistance.

The purpose of a state-financed second-injury fund is to encourage the hiring of rehabilitated handicapped workers by providing full compensation for any subsequent injury while protecting the employer from costs associated with the joint effects of the two injuries. The second-injury fund charges the employer only for the impairment caused by the second injury alone, and the fund pays the worker the difference between that amount and the total benefits warranted by the combined effects of the two injuries.

In practice, the workers' compensation system poses obstacles to rehabilitation in several ways. First, in cases of relatively minor disability, the incentives to the employer/insurer to provide physical rehabilitation services are low because it is often unclear at the time of settlement whether the costs of the services will outweigh the potential savings to the insurer. The insurer will benefit if the rehabilitation efforts are successful enough to return the employee to work and remove him from the benefit rolls that would otherwise have been payable to the employee. Second, workers often have incentives to avoid rehabilitation while their cases are still pending or are subject to re-opening. In order to receive benefits, the claimant must show that he has suffered impairment and disability. Since 39 percent of permanent partial and 52 percent of permanent total disability cases are litigated, the worker claiming permanent disability must anticipate proving his case some considerable time after injury has occurred. By the time the claim is resolved, rehabilitation efforts may be ineffective—certainly less effective than if they had been started earlier—and employers have still less incentive to provide services. Finally, the reluctance of employers to hire handicapped workers destroys a primary incentive for rehabilitation; this reluctance may be partly due to the high level of payments for which an employer would be liable if the worker is hurt again. This last obstacle has been counteracted in many states by the establishment of second-injury state funds, which cover the difference between the proportion of a disability caused solely by a second injury, for which the second employer is liable, and the total disability that has resulted.

Most authorities seem to agree that improvement in the provision of rehabilitation services depends on effective supervision by the state workers' compensation agency, prompt settlement of claims, and coordination of medical care and rehabilitation services which may be provided by independent services. Various sources have charged that many state agencies provide passive and insufficient administrative supervision of the overall compensation program, and a thorough study of ways to encourage more effective agency administration seems particularly important at this time.

Safety Encouragement

Safety encouragement, an implicit objective of workers' compensation, is accomplished in two major ways. First, insurance ratings linking premium payments to a firm's accident rate encourage firms to undertake safety precautions. Second, insurers often offer loss prevention services to assist employers with risk identification and correction. It is difficult, though, to assess the specific effects of workers' compensation practices on injury rates in that other incentives also affect employers' decisions about safety investments. Proposals for heightening the safety encouragement aspects of workers' compensation are described below. The issues influencing the efficacy of current safety practices are discussed briefly here and in greater detail in Sec. III.

The Bureau of Labor Statistics estimates that one of ten workers in private industry suffers from a work-related accident or disease each year; however, only one-third of these incidents results in lost work time. According to the National Safety Council, the risks of on-the-job injury were slightly higher in 1970 than the risks of living in general—13.9 versus 10.5 injuries per million person-hours of exposure. The motor vehicle accidental injury rate for the same year was 32.8 per million hours of exposure. The 2.2 million work-related injuries in 1970 accounted for about 20 percent of all accidental injuries in that year. About 12 percent of all accidental deaths were work-related in 1970, as compared with more than 20 percent in 1929. Industrial safety, at least as measured by accidental injury and death rates, has improved considerably over the last several decades. Of course, job risks vary widely across occupations, and injury rates have not decreased uniformly over the years. Although a third of all workers encounter lower risks of injury on the job than off the job, those who are employed in occupations such as logging, mining, oil drilling, fire protection, and meat packing face in excess of 40 injuries per million hours of exposure.

Improving workplace safety is the explicit goal of regulatory legislation such as OSHA, but it is also an implicit objective of the workers' compensation system. Workers' compensation rests upon the economic principle that those persons who enjoy the product of a business should ultimately bear at least part of the cost of injuries or deaths that are incident to the manufacture, preparation, and distribution of the product. Predictable costs of production should be reflected in the price of a product. Theoretically, to the extent that certain kinds of accidents are unavoidable and predictable, each competing firm in an industry is uniformly affected; therefore, no producer can gain a substantial competitive advantage or suffer any appreciable loss by subsuming such accident costs in the costs of production. By implication, firms have incentives to prevent avoidable accidents or illness-causing situa-

tions, so as to enhance their ability to compete in the market for goods and services. Of course, an entire industry might lose competitive advantage if product prices rise beyond a certain point. And even in competitive equilibrium, accident prevention costs may vary with optimal accident rates.

Oi argues persuasively that one can usefully think of accidents and goods as being joint products that are "produced" by combining inputs of labor and capital. He observes:

[No one] intentionally "produces" industrial accidents. Work injuries are accepted as undesirable "bad" by-products in order to obtain larger outputs of soda pop, bituminous coal, and econometrics textbooks.⁴⁶

By treating injuries as by-products, Oi appeals to the neoclassical theory of joint products and the more recent theories of externalities⁴⁷ to analyze how various economic factors and institutional arrangements are likely to affect the equilibrium output of this undesirable "product." The goal of the employer is to minimize the sum of the firm's accident and accident prevention costs. The opportunity cost of accident prevention measures (inspection, purchase of safer equipment or safety devices, slower pace of assembly line, more liberal sick leave, etc.) equals the value of the output that could have been produced without such prevention efforts. The firm strives for that combination of explicit and implicit outlays that will minimize the firm's total economic cost of reducing work injuries to the level where the marginal benefit of safety equals the marginal expense of safety.

Given a nearly universal workers' compensation insurance program, the employer can measure accident costs through insurance premium outlays. However, in addition to these premiums, he must weigh the fixed employment costs of accidents—the hiring and training of new workers to replace disabled ones—as well as the rise in wages relative to risk (the risk premium component). These factors would also seem to ensure employers' interest in lowering accident rates. At the same time, by offering insurance, employers in risky occupations may be able to lower the wages needed to attract workers. Furthermore, the insurance mechanism reduces accident costs by spreading them across firms and industries. Some argue that these savings, which lower real accident costs, may actually discourage accident prevention measures.

⁴⁶Walter Y. Oi, "An Essay on Workmen's Compensation and Industrial Safety," *Supplemental Studies for the National Commission on State Workmen's Compensation Laws*, Vol. 1, U.S. Government Printing Office, Washington, D.C., 1973, p. 42.

⁴⁷The treatment of injuries as an externality is key to the analysis of workers' compensation found in O. E. Williamson, D. G. Olson, and A. Ralston, "Externalities, Insurance, and Disability Analysis," *Economica*, Vol. 34, August 1967, pp. 235-253.

An alternative to compensation insurance would be to allow the labor market to operate so that workers in risky jobs demand wages that reflect accident costs. As Oi points out, "The case for some externally determined values for disabling injuries [(workers' compensation benefits)] seems to rest on the premise that workers systematically underestimate the risks and/or costs,"⁴⁸ that is, that they do not demand wages commensurate with actual occupational risks.⁴⁹

Whether insuring against accident costs in itself operates to increase or reduce the incidence of such accidents, workers' compensation insurance seeks to encourage job safety by providing monetary incentives through merit-rating systems as well as accident prevention services. The rating system is actually two-tiered. Employers are first grouped by type of industry into about 500 active insurance classes for which different manual rates are calculated. For larger firms, this manual rate is then modified by the firm's individual experience relative to other firms in that classification. About 20 percent of firms were experience-rated in 1972. These firms employed 80 percent of all insured employees. More employers are now in experience-rated categories than in 1972 because inflation and recent reforms have pushed their annual premium payments to the minimum level for such rating. Smaller firms that are not experience-rated may be penalized for a higher than average accident record by being required to buy insurance from an assigned risk pool which assesses an extra charge. This practice is disappearing in many states as more and more firms fall into experience-rated categories.

The National Commission had recommended that insurance carriers be required to provide to their clients loss prevention services that would be audited by the state workers' compensation agencies, that experience-rating be extended to as many employers as practicable, and that the relationship between the experience of an employer and that of others in its insurance classification be reflected more equitably in the employer's insurance rate. These reforms seem logically desirable but would of course also raise insurance premiums. The net benefits of these changes have not yet been evaluated in any systematic way.

Estimating the effects of the safety incentives implicit in workers' compensation insurance practices on the incidence of job-related

⁴⁸Walter Y. Oi, "On the Welfare Economics of Workmen's Compensation," University of Rochester, Department of Economics, mimeo., undated, p. 24.

⁴⁹If one assumes that workers have imperfect information and that they are therefore unable to incorporate accident risks and costs in their supply price to hazardous firms, an insurance system that forces the employer to pay for his share of accident costs should decrease the equilibrium injury rate. Indirectly, the purchase of insurance in this case leads to a more accurate schedule of "wage" rates.

disabilities is difficult for a number of reasons. First, as discussed earlier, employers have other incentives, unrelated to those implicit in workers' compensation, to reduce disabilities. Second, other aspects of workers' compensation, such as increases in benefit levels and accompanying premium costs, may also affect employers' accident prevention efforts. Finally, the regulatory efforts of state and federal safety agencies have an indeterminate effect on the incidence of occupationally related injuries and illnesses.⁵⁰ Thus, whether implementation of the Commission's recommendations would be the most effective and efficient means for strengthening the safety incentives of workers' compensation is debatable.⁵¹

Texas, Oregon, and Florida have adopted as a licensing requirement the Commission's recommendation that all workers' compensation insurance carriers provide loss prevention services to all their clients. A careful look at the effects of this requirement on industrial accident rates in those states, particularly for firms that had not previously received such services, might provide a partial answer to the question of how modifications of insurance companies' practices can influence occupational health and safety records. Some representatives of the insurance industry have also expressed interest in research directed at identifying major loss sources so that they can better target their loss prevention services at those industries, firms, and occupational conditions that would benefit most from industry-set standards and inspections.⁵² The relative effectiveness of safety standards

⁵⁰Nichols and Zeckhauser claim that OSHA's regulatory efforts have had no noticeable impact on work-related injuries and illnesses. Albert L. Nichols and Richard Zeckhauser, "Government Comes to the Workplace: An Assessment of OSHA," *The Public Interest*, Vol. 49, Fall 1977, pp. 39-69. Smith also contends that OSHA's program is ineffective in reducing injury rates, although the standards for occupational disease prevention may be worth retaining. Robert Stewart Smith, *The Occupational Safety and Health Act: Its Goals and Its Achievements*, American Enterprise Institute for Public Policy Research, Washington, D.C., 1976.

⁵¹An analysis by Russell shows that the experience-rating formula currently in use provides small firms with negligible financial incentives for safety. Her analysis fails to support the National Commission's recommendation that experience-rating be extended to still smaller firms—unless substantial changes are made in the formula. Louise B. Russell, "Safety Incentives in Workmen's Compensation Insurance," *Journal of Human Resources*, Vol. IX, No. 3, Summer 1974, pp. 361-375.

Oi points out that fully one-third of the labor force experiences lower risks of injuries on the job than off the job. It is probable that in these "safe" industries "the injuries largely reflect the risks of living in general rather than the unique accident generating characteristics of the work environment." Oi, "On the Welfare Economics of Workmen's Compensation," p. 34. If these are the industries to which insurers provide few or no accident prevention services, the Commission's recommendation that such services be extended to all employers would have little effect on safety levels, though it would increase premium prices.

⁵²See the remarks of Roger H. Wingate, Senior Vice President, Liberty Mutual Insurance Company, in *Proceedings of the Chief Executive Officers Workers' Compensation Conference*, Airlie, Virginia, June 7-9, 1978, pp. 164-182.

administered and enforced by government regulatory agencies versus those administered by insurance companies (through rate setting and loss prevention activities) has not been determined, and seems a question worthy of further investigation.

Effective Delivery System

When the workers' compensation bargain was first struck, it was hoped that the program would be very nearly self-administering. The no-fault concept and prescribed benefit levels were intended to encourage "adequate, prompt, and equitable" reimbursement to disabled workers and thereby to reduce, if not eliminate, the need for litigation. The dream of a self-administering system has not materialized for a number of reasons.

Determinations of compensability and the extent of disability have proved to be generally controversial. In addition, state agencies, which could have prevented much litigation by establishing guidelines and by monitoring claims handling, have in many cases provided little assistance to either employees or employers in clarifying the statutes and settling disputes. Finally, and perhaps most importantly, the changing views of employers' obligations to their employees and of society's responsibilities to its citizens over the past half-century have both expanded the purview of the compensation system and obscured somewhat the earlier distinctions between the goals of that system and those of other social insurance mechanisms. Litigation is frequently used as a vehicle for clarifying and then translating changes in societal views into an eventual renegotiation of public policy. Arriving at a formulation of how injury and illness costs should be allocated to individuals, firms, and governments in an age where the responsibilities of each set of actors are being redefined is a challenging task. The system of agencies and courts charged with delivering workers' compensation benefits must also balance the equity and efficiency issues involved in allocating injury and illness costs.

Sources of Litigation. Despite its no-fault characteristics, the compensation system as it presently operates is heavily adversarial. It has replaced litigation over who is at fault with litigation over what is at fault (whether that cause is more or less related to the workplace situation than other possible causes) and what the effects of an accident will be on the victim. The Interdepartmental Workers' Compensation Task Force estimated in 1977 that the costs for adjudication of claims amounted to about 17 percent of benefits. Data from the 1975 Survey

of Closed Workers' Compensation Claims⁵³ suggest that approximately 20 percent of all claims are contested at some point, although the proportions for nonaccident cases are much higher. It should be noted that these estimates have been disputed because of the methodology employed by the survey, the disproportionate sampling of certain types of claims, and the imprecision in defining occupational disease. As shown in Table 2.1, reasons for contesting claims differ for the various types of claims. Occupational disease claims are most likely to be contested on the basis of their relation to the work environment. Accident claims, which are rarely contested, are most likely to be challenged on grounds relating to the extent of the disability incurred.

Table 2.1

PERCENTAGE OF WORKERS' COMPENSATION CLAIMS CONTESTED
BY CASE TYPE AND REASONS FOR CONTESTING

	Occupational Disease	Heart	Accident
% of Claims Contested	62.7	55.2	9.8
Primary Reason for Contesting Claims			
Work relatedness (%)	72.5	76.0	20.6
Extent of disability (%)	12.0	11.6	55.8
Other issues (%)	15.5	12.4	23.6
Subsample	1,052	434	8,146

Occupational disease and illness claims undoubtedly account for much of the current litigation within the compensation system. Table 2.2 provides an indication of which of these claims are most likely to be contested. Diseases that have many possible causes, both in and outside of the work environment, are most likely to be the subject of contested claims. More provocative is the Department of Labor's estimate that only about 3 percent of occupational disease cases even enter the workers' compensation system.⁵⁴ This estimate, of course, is highly sensitive to the definition of occupational disease.

There are a number of reasons why potentially compensable claims

⁵³The survey sample contained 40,000 cases out of an estimated 73,000 cases closed during the sample period. Data obtained from individual insurance carriers were processed by the National Council on Compensation Insurance and the National Council of Self-Insurers. All disease and heart cases and a subsample of the injury cases were selected by Barth and Hunt and the data weighted to reflect differing sampling ratios for temporary, permanent, and death cases. Peter S. Barth and Allan H. Hunt, *Workers' Compensation and Work-Related Illnesses and Diseases*, 1976 (unpublished), pp. 281, 284.

⁵⁴U.S. Department of Labor, p. 67.

Table 2.2

DEGREE OF CONTROVERSION BY CATEGORY OF DISEASE

	No. of Cases Controverted	Percent of Cases in Category
Skin diseases	33	14.2
Dust diseases	149	88.2
Respiratory conditions		
due to toxic agents	95	78.5
Poisoning	18	36.7
Disorders due to physical		
agents	1	10.0
Disorders due to repeated		
trauma	297	85.8
Cancers and tumors	5	45.5
Other	53	53.5
Total	651	62.7
Heart	232	55.2
Accident	776	9.8

SOURCE: P. Barth and A. Hunt, *Workers' Compensation and Work-Related Illnesses and Diseases*, 1976 (unpublished), p. 310.

may not enter the workers' compensation system. If a worker (or the survivor of a deceased worker) presumes or is told that his disability will not be compensable or will be contested, he may seek benefits under another program such as Social Security Disability Insurance, Social Security Survivor's Benefits, Supplemental Security Income, Medicare, Medicaid, or a private health or disability insurance policy. Although some disabled workers can and do receive benefits from both workers' compensation and other sources,⁵⁵ the data included in Table 2.3 suggest that the process for obtaining a workers' compensation award may be more burdensome and more open to challenge than for other programs designed to deliver similar kinds of benefits. The necessity of proving that an injury is work-related is an element of the process unique to workers' compensation; whether this element alone accounts for the greater frequency of contested claims is not clear. The private nature of workers' compensation and its basic purposes set it apart from

⁵⁵An interview study conducted by Cooper and Company of workers' compensation claimants whose cases had been settled in 1973 found that 37 percent of respondents received benefits related to their injury or illness from at least one other source. This proportion rose to 49 percent for the occupational disease cases, 60 percent for the permanent total disability cases, and 75 percent for cases of work-related deaths. The largest overlap was with Social Security Disability Insurance. See survey results in Interdepartmental Workers' Compensation Task Force, *Workers' Compensation*, p. 10.

government income maintenance programs, because in the latter the size of the claim and the source of the disability are not at issue. Hence, incentives for litigation are far greater in the workers' compensation system.

Table 2.3

PERCENTAGE OF CONTESTED AND UNCONTESTED CASES
UNDER SOCIAL SECURITY DISABILITY INSURANCE
AND WORKERS' COMPENSATION

	SSDI	Workers' Compensation
Uncontested benefits	83.6	40.4
Informal administrative review	11.5	
Administrative and legal appeals	4.9	59.6
	100.0	100.0

SOURCE: Committee on Ways and Means, U.S. House of Representatives, *Committee Staff Report on the Disability Insurance Program*, Washington, D.C., 1974, pp. 308-310; and Cooper and Company, *Promptness of Payment in Workers' Compensation*, prepared for the Interdepartmental Workers' Compensation Task Force, Washington, D.C., August 31, 1976, p. 41.

Of course, if a claim enters the system and is disallowed, the worker will seek other sources of benefits. Many occupational disease claims may be disallowed because the time allowed for filing a claim has run out before the disease is identified and traced to the work environment or because the link between the disease and the work environment cannot be proven. In addition, the worker may decide to "opt out" of the compensation system in order to bring suit against his employer, or he may try to supplement his compensation benefits by bringing a third party action in tort. There are several ways in which the exclusivity portion of the workers' compensation "bargain" may be skirted. These are examined in the next subsection.

State Administrative Mechanisms. The amount of litigation accompanying workers' compensation claims varies significantly from state to state, as does the promptness of settlement and payment. The administrative mechanisms for handling workers' compensation claims are also very different across states.

In most jurisdictions, administrative responsibility is vested in a special state agency. Often a separate commission is set up to handle contested claims. In about half of these states, the chief administrator performs administrative duties but does not adjudicate. In others, the chief administrator performs both kinds of duties as head of the state

agency and/or as a member of the commission that rules on contested claims. In some cases, the entire commission is assigned the administrative responsibilities. Louisiana has no administrative agency at all, and the entire system is court-administered. In most states, disputed claims are referred first to an administrative agency or commission; in five states they go directly to the courts.⁵⁶

Some agencies take an active role in administering the law by disseminating information to employers and employees to apprise them of their rights and responsibilities, interpreting the statutes, supervising benefit payments and compromises when a dispute arises, assisting in rehabilitation of injured workers, compiling relevant statistics about accidents, claims, etc., and making recommendations to the governor and legislature to improve the laws. Most perform only an assorted few of these functions, while others do little else than adjudicate contested claims. Consequently, the efficiency of claims-handling, the equitability of awards, and the availability of data vary greatly from state to state. Table 2.4 illustrates the variability in both the handling of claims and the extent of data collection efforts across states.

Table 2.4

CONTESTED CASES AS A PERCENTAGE OF
ALL REPORTED CASES IN STATE WORKERS'
COMPENSATION PROGRAMS, 1971

<u>Percent</u>	<u>Number of States</u>
Less than 5%	11
5 - 9.9%	6
10 - 24.9%	3
25 - 49.9%	4
50% or more	1
Cannot estimate	25

SOURCE: *Report*, National Commission on State
Workmen's Compensation Laws, U.S. Government
Printing Office, Washington, D.C., 1972, p. 107.

States also differ in the methods of deciding and initiating benefit payments. Benefit payments in uncontested cases are usually initiated by means of either direct payment or agreement. In direct payment states, the employer is obligated to begin payment at once unless there is a legitimate dispute about liability. The administrative agency re-

⁵⁶A description of the administrative approach of each state is included in the *Alliance of American Insurers' Workers' Compensation State Administrative Directory*. Chicago, Illinois, 1979 (updated annually).

ceives reports from the employer or insurer concerning the status of payments and intervenes only if a problem arises or undue delay occurs. The agreement system operates in a majority of states. Under this system, the employer does not begin payments until an agreement has been reached with the employee concerning the benefits to be paid. Possible errors in amount or duration are corrected by the agency before the agreement is approved. Most observers fault the agreement system for unnecessarily delaying initial payments and for placing the worker at a disadvantage in bargaining. It is likely that the large proportion of uncontested cases in which claimants retain lawyers reflects the attempts of workers to overcome the disadvantage they face under the agreement system.

After the employer's liability is established, either by voluntary payments or by a formal hearing, the extent or duration of the liability must be decided. One of the more controversial practices relating to the handling of claims is the use of compromise and release settlements to close cases. This practice is used frequently in a number of states to release the employer from further liability by effecting a compromise, between the worker's claim and the employer's offer, of benefits to be paid, and allowing the full payment of that amount in a lump sum.⁵⁷

Arguments against the use of compromise and release agreements are that they may deprive the employee of his rights to medical care should the need recur, that they may seriously underestimate the extent or duration of the impairment, and that they may later shift the costs of the disability to other social insurance programs if the employee has expended the amount of the award before he can return to work. On the other hand, such agreements may reduce the administrative load of the state agency; they may allow compensation to a worker when there are legitimate doubts concerning employer liability and prevent costly litigation which would otherwise ensue; and they may contribute to the employee's vocational rehabilitation by allowing him to pursue training opportunities or to invest in a small business.

Private versus State Insurance Coverage. Since the earliest days of workers' compensation there has been debate over the relative merits of private and state insurance coverage. About two-thirds of all workers' compensation benefits are paid by private carriers, another 20 to 25 percent by state funds, and the remainder by self-insured employ-

⁵⁷In six states and under the Federal Employees' Compensation Act, compromise and release settlements are not permitted by law. Some states permit such agreements for income benefits but not for medical and rehabilitation benefits. Where there is no statutory provision, courts in some states have ruled that the employee cannot lawfully accept less than the compensation specified in the statute. See, e.g., *Southern v. Department of Labor and Industries*, 39 Wash. 2d 475, 236 P.2d 548 (1951); *Nagy v. Ford Motor Co.*, 6 N.J. 341, 78 A.2d 709 (1950).

ers. Private insurance is allowed in 44 states and under the Longshoremen's and Harbor Workers' Compensation Act. In 12 of these states, private carriers compete with a state fund, but in six states, state funds are the exclusive source of coverage. Self-insurance by financially responsible employers is allowed in all but four states.

Exclusive state funds are often defended as being cheaper than private insurance because their compulsory nature obviates the need for commissions and advertising. Private insurers argue, though, that "when the total cost-benefit is reviewed including taxpayer subsidies [to government funds], quality of services provided, and the effects of services on loss cost, the private insurance mechanism performs as economically as any government insurance mechanism."⁵⁸ It is generally agreed that private insurers provide more accident prevention services to their clients than do state funds. Moreover, private insurance is more adaptable to the needs of an employer who conducts business in a number of states. Private insurers are reputedly more likely to contest claims and to litigate adverse board decisions; however, no empirical evidence has been presented to support or refute this claim. As the National Commission noted in 1972, there appears to be as much difference in the cost and quality of service within each of the approaches to insurance (private, state, and self-insurance) as among them.

WORKERS' REMEDIES OUTSIDE THE COMPENSATION SYSTEM

A basic premise of workers' compensation is that the employee, by accepting prompt and certain compensation when he suffers a work-related disability, relinquishes the right to sue his employer in tort. In the principal case upholding the constitutionality of workers' compensation, the U.S. Supreme Court stressed that the abrogation of certain common-law rights (i.e., the employee's right to sue for damages and the employer's right to be held liable for only those injuries caused by his own negligence) was justified by the special nature of the employment relationship and society's interest in its smooth operation, and by the reciprocal compensating advantages that were substituted for those rights.⁵⁹ Since those principles were articulated in 1917, the nature and extent of the employer's exclusive liability have been the subject of both legislative and judicial modification and debate. If an employer can be

⁵⁸Alliance of American Insurers, *Workers' Compensation Information Bulletin*, No. 79-48, Chicago, Illinois, December 18, 1979.

⁵⁹*New York Central R.R. v. White*, 243 U.S. 188 (1917).

held liable for accident costs beyond those covered by workers' compensation, the rationale for the compensation quid pro quo may be threatened. On the other hand, if third parties can be held liable for the full costs of an accident caused partly or solely by employer negligence, the incentives for employers to pursue loss prevention activities are diminished. Either of these situations can obtain under current law in a number of jurisdictions.

First, there are several circumstances under which a disabled worker may not be precluded by the exclusivity provision of the workers' compensation statutes from bringing a tort action against his employer. Such actions generally fall into one of the following categories:

1. The worker may elect not to file a workers' compensation claim if he feels he can prove in court that the disability he has sustained is not compensable under the statute, either because
 - a. The injury occurred outside the course of employment and resulted from the employer's negligence,⁶⁰ or
 - b. The injury by law is not considered to have "arisen out of" the employment, as in the case of an occupational disease resulting from the employer's negligence but not covered by the compensation act.⁶¹
2. The worker has the option in some states to sue at common law for an *intentional* tort of his employer which causes him injury. The action of the employer in this case must involve a "deliberate intent to injure"; a showing of gross negligence is not enough to sustain a claim of this sort.⁶²
3. The worker who falls under the provisions of the Federal Employers' Liability Act (FELA) (railroad workers) or the

⁶⁰See, for example, *Moss v. St. Paul-Mercury Indemnity Co.*, 35 So. 2d 867 (La. App. 1948) (student hired to drive college bus turned operation of vehicle over to third person and was injured while riding as a passenger). Such claims may, however, be barred by the provision that the compensation act be "liberally construed" so as to favor coverage, as in the case of *Scott v. Pacific Coast Borax Co.*, 140 Cal. App. 2d 173, 294 P.2d 1039 (1956) (an employee attending to personal business was hurt in an explosion which occurred after his regular working hours; compensation allowed, damages denied).

⁶¹See, for example, *Niles v. Marine Colloids, Inc.*, 249 A.2d 277 (Me. 1969) (worker contracted occupational disease not listed in statute); *Triff v. National Bronze and Aluminum Foundry Co.*, 135 Ohio St. 191, 20 N.E.2d 232 (1939) (same as above). Following the *Triff* decision, the Ohio legislature amended the statute to disallow such tort actions, whether the disease in question was compensable or not.

⁶²The option to sue an employer for damages occurs in situations where the employee has sustained injury due to a personal assault against him or other action conducted with an intent to injure by his employer. The employee may elect compensation payments or a damage suit but not both. *Legault v. Brown*, 283 A.D. 303, 127 N.Y.S.2d 601 (1954); *Readings v. Gottschall*, 201 Pa. Super. Ct. 134, 191 A.2d 694 (1963). An option to sue at common law for the intentional tort of the employer is conferred by statute in Kentucky, Maryland, Washington, and West Virginia.

Jones Act (seamen) is entitled to claim compensation benefits *and* to retain the right to sue his employer for any negligence that contributed to his injury.⁶³

4. The worker whose employer occupies a "dual capacity" with respect to the worker, as when the employer also manufactures the tools or equipment used by the employee in the course of his work, may sue his employer for negligence involved in the employer's exercise of the second, independent function. Such actions are generally product liability suits, but the "dual capacity" doctrine may also apply to instances where the employer offers medical care which is negligently administered (malpractice).⁶⁴

A recent interpretation of the exclusivity provision of California's law by that state's supreme court is particularly noteworthy because of the number of suits involved and the precedent it sets. In the case before the court, an asbestos worker who died from lung cancer after filing the suit alleged that his employer fraudulently concealed from him, his doctors, and the state that he was suffering from asbestosis. Seventy-five other employees have cases pending on the same grounds. Although the company knew of the dangers of asbestos, it failed to warn its employees and withheld results from their annual physical exams. This conduct, the court ruled, justifies a separate cause of action for general and punitive damages, since it caused aggravation of the disease by preventing workers from receiving timely and appropriate treatment. Workers' compensation coverage will not bar recovery in these suits, although the employer may be allowed a set-off of compensation awards for aggravation of the injury against the damage

⁶³The FELA (45 U.S.C.A. § 51) and the Jones Act (46 U.S.C.A. § 688) impose upon the employer the duty of paying damages when a worker's injury was caused in any part by the employer's negligence. This result follows whether the fault is a violation of a statutory duty or the more general duty of acting with care.

⁶⁴Application of the "dual capacity" doctrine requires that the product or service involved in the negligence claim is manufactured or provided by the employer for sale to the public rather than for the sole use of the employer. See, for example, *Douglas v. E&J Gallo Winery*, 69 Cal. App. 3d 103, 137 Cal. Rptr. 797 (1977) (plaintiff injured when he fell from allegedly defective scaffolding manufactured by his employer); *Stevens v. County of Nassau*, 56 A.D.2d 866, 392 N.Y.S.2d 332 (1977) (hospital worker fractured her wrist on the job and was improperly treated in the hospital's emergency room). In general, a suit cannot be maintained for malpractice against a doctor employed in a company's on-site infirmary. *Garcia v. Iseron*, 33 N.Y.2d 421, 309 N.E.2d 420, 353 N.Y.S.2d 955 (1974).

The Superior Court of Cumberland County, New Jersey, recently refused to extend immunity from suit by an employee of one subsidiary to another subsidiary of a large corporate conglomerate, finding that such a move would deny the product liability field to a large percentage of workers. *Mingin v. Continental Can Co.*, 48 U.S.L.W. 2432 (1979) (employee of one subsidiary of a large corporation injured as a result of defects in a machine made by another subsidiary; claim for damages allowed).

awards.⁶⁵ Thus, the exclusive nature of the employer's liability is eroded where intentional harm and lack of good faith can be proved.

Another question related to the extent of the exclusivity provision is, to what parties associated with the immediate employer and the workers' compensation system does immunity from suit extend? In many states, immunity has been extended by statute to co-employees of an injured worker, although the status of executives and supervisory personnel varies considerably, as does that of contractors and subcontractors.⁶⁶ Immunity has been extended to the employer's insurance carrier in some jurisdictions, but in others the insurer's failure to adequately perform agreed-upon safety inspections has resulted in the insurer's liability for resulting injuries.⁶⁷ Legislative acts designed to extend immunity from suit to all employers contributing to a state's compensation system by any employee covered by workers' compensation have been abolished.⁶⁸ The "special nature" of the employment relationship has been interpreted as justifying

⁶⁵*Johns-Manville Products Corp. v. Contra Costa Superior Court* (Cal. Sup. Ct. July 3, 1980, 49 U.S.L.W. 2059).

⁶⁶In about half of the states, the compensation statute confers the employer's immunity upon the co-employee. In others, suits may be maintained against executives or supervisory personnel for failure to correct a dangerous condition under their supervision. See, e.g., *Artonio v. Hirsch*, 3 A.D.2d 939, 163 N.Y.S.2d 489 (1957) (employee's injury caused by employer having deliberately sealed off safety device on a steel press in order to speed up operations; compensation exclusive remedy against corporate employer, but suit maintainable against executives); *Miller v. Muscarelle*, 67 N.J. Super. 305, 170 A.2d 437 (1961); *Cantor v. Koehring Co.*, 283 So. 2d 716 (La. 1973).

In some states, an employee who is injured through the negligence of his employer's subcontractor may maintain a suit for damages against the subcontractor. The contrary rule holds in a few jurisdictions. *Brown v. Marr Equip. Corp.*, 355 Mass. 724, 247 N.E.2d 352 (1969). In the case where the employee of a subcontractor is injured through the contractor's negligence, most courts have held that the general contractor remains a third party subject to common-law liability.

⁶⁷In some cases, the employer's compensation insurer has been considered a third party against whom the injured employee could maintain a tort claim. *Bryant v. Old Republic Ins. Co.*, 431 F.2d 1385 (6th Cir. 1970, applying Kentucky law) (insurer had undertaken to inspect employer's mine; proper inspection would have prevented injury to employee); *Beasley v. McDonald Eng'r Co.*, 287 Ala. 189, 249 So. 2d 844 (1971). For a holding that immunity extended to the insurer, see *Unruh v. Truck Ins. Exch.*, 7 Cal. 3d 616, 102 Cal. Rptr. 815, 498 P.2d 1063 (1972). See also Comment, 3 Cumberland-Samford L. Rev. 118 (1972).

⁶⁸The Alabama, Washington, and Illinois legislatures at one time amended their workers' compensation laws to provide systemwide immunity for all employers contributing to the compensation system. The Alabama and Washington schemes were both legislatively abolished, while the Illinois statute was declared unconstitutional on the grounds that it created an arbitrary distinction among tortfeasors. *Grasse v. Dealer's Transp. Co.*, 412 Ill. 179, 106 N.E.2d 124 (1952), cert. denied, 344 U.S. 837. Similarly, the Montana Constitutional Convention in 1972 abrogated legislatively and judicially developed rules that restricted the tort-recovery opportunities of an injured worker and adopted a section in the state constitution's bill of rights preserving extensive rights of an injured party to sue third parties, even when the plaintiff is covered by workers' compensation.

extension of immunity to co-workers; however, an employment relationship cannot be considered to exist between an employer and the employees of a different company.

Third Party Suits

Any party not granted immunity under the workers' compensation system can be sued in torts as a third party by the injured worker. Such actions are fairly frequent and result in substantial awards. According to one estimate, in 1974, 31,500 of 1.5 million compensation claims led to suits against third parties. Benefit payments for all claims amounted to \$5.5 billion, and the third party suits led to additional payments of \$1.5 billion.⁶⁹ Legal rules governing the rights of the employer and the employee in such third party actions affect the employee's right to collect both damages and compensation benefits for the same injury; the employer's entitlement to indemnity or reimbursement from the third party for the compensation benefits he has paid out; and the amount of the third party's liability. The operation of these rules has important implications for the equitable and efficient allocation of accident costs as well as the balancing of safety and compensation objectives.

Subrogation

Subrogation is the right of a party who has paid the losses of an injured party to sue, or otherwise be reimbursed by, a third party who is primarily responsible for the injury-causing wrong. The mechanics of subrogation in a third party claim following workers' compensation payments vary from state to state. Some states allow the employer's subrogation right and the employee's direct right to stand side by side; others establish a sequence under which first one and then the other has the right to bring the third party suit. Four states require absolute subrogation: the employee's right of action is unconditionally assigned to the employer who pays compensation. These four states and a few others require the employee to select either compensation benefits or a third party suit, but not both. In three states—Georgia, Ohio, and West Virginia—the employer has no subrogation right, and in some

⁶⁹Merton C. Bernstein, "Third Party Claims in Workers' Compensation: A Proposal To Do More with Less," 1977 Wash. U.L.Q. 543. Bernstein proposes that third party claims be replaced by a requirement that defendants in these suits pay equivalent sums into the compensation fund to increase all awards and to reduce premiums now paid into the funds by employers.

others, subrogation rights are applicable only to situations specified in the statute.⁷⁰ Under most of the subrogation statutes, the employer's reimbursement is regarded as a prior claim or lien, and the employee is entitled only to any excess resulting from the suit. In a few states, an employer may recoup more than his compensation payments.⁷¹

The advisability of maintaining the employer's right to subrogation in workers' compensation cases has been challenged on at least two grounds. First, it is argued that subrogation increases litigation, particularly in the area of product liability. Whether this is a necessarily negative outcome depends upon one's point of view. Perhaps encouragement of product liability actions ultimately increases the safety of products and hence of the workplace; perhaps such actions remove too much of the responsibility for workplace safety from the shoulders of the employer. It is alleged that subrogation encourages insurance carriers to attempt recovery of their losses through third party actions. A survey of third party product liability suits brought against manufacturers by California employees found that 28 percent of those receiving awards (accounting for 40 percent of the dollars paid) were represented by workers' compensation insurance carriers.⁷² Second, it is argued that negligent employers should not be allowed to recoup their workers' compensation payments from third party manufacturers. This result can follow from the "mismatch" of subrogation and contribution and indemnification rules in a number of states. These combined rules often allow an employer to sue a negligent third party for recovery of workers' compensation payments but prevent the third party from recovering any part of the damages from a negligent employer.

Contribution and Indemnification

Contribution and indemnification rules apply to the proportioning of damages among joint tortfeasors. In the context of workers' compensation law, they may reintroduce assessments of employer and employee negligence into determinations of compensation when a third

⁷⁰See, for example, *Updike Advertising Sys. v. State Indus. Comm'n*, 282 P.2d 759 (Okla. 1955); *Orth v. Shilly Petter Crushed Stone Co.*, 253 Minn. 142, 91 N.W.2d 463 (1958).

⁷¹In some states—Massachusetts, for example—the employer is encouraged to press the third party claim to its full extent by a provision which allows him to retain a part of the employee's share. Some other states which give the employee first rights to sue (e.g., New York) encourage the prompt exercise of that right by granting the employer a share of the excess over the compensation outlay if the employee fails to assert his prior right. But in Arkansas and Wisconsin, the employee is entitled to one-third of the recovery in any event, unaffected by the employer's lien.

⁷²California Citizens' Commission, p. 40.

party, such as a product manufacturer, is implicated in the injury. Thus, the operation of these rules can serve to encourage or discourage the use of the tort system when work-related injuries occur. The steep increase in work-related product liability actions in recent years has drawn attention to the incentives for third party litigation contained in both workers' compensation laws and other judicial rules. The interface between laws governing workers' compensation and product liability actions also affects incentives for accident prevention on the part of employers and product manufacturers.

Contribution is a device for apportioning damages among two or more tortfeasors whose combined actions caused an injury to the plaintiff. Typically, contribution depends upon the joint liability of defendants to a common plaintiff. Each of the concurrently negligent defendants is liable to the paying defendant for a share of the judgment or settlement. Most jurisdictions do not allow the third party manufacturer to secure contribution from a negligent employer. The denial of contribution is often explained on the ground that contribution exists only where there is joint liability, as opposed to mere joint tortfeasorship.⁷³ Because an employer who has paid workers' compensation benefits cannot be held liable in tort for injuries suffered by his employee, he cannot be considered jointly liable with another defendant. A few states, however, have recently allowed contribution, limiting the amount of contribution to the amount of the employer's workers' compensation liability,⁷⁴ while other jurisdictions have achieved the same result by preventing the negligent employer's recovery and reducing the manufacturer's liability by the amount of the compensation benefits paid by the employer.⁷⁵

In New York, the application of a comparative negligence approach to apportioning liability has resulted in the manufacturer's ability to

⁷³This result has been reached on the ground that "the employer is not jointly liable to the employee in tort; therefore he cannot be a joint tortfeasor. The liability that rests upon the employer is an absolute liability irrespective of negligence, and . . . is the only kind of liability that can devolve upon him whether negligent or not. The claim of the employee against the employer is solely for statutory benefits; his claim against the third person is for damages. The two are different in kind, and cannot result in common liability." Larson, *Law of Workmen's Compensation*, § 76.21 (1961 ed.). In the absence of such common liability, most courts have reasoned that the parties may not be deemed joint tortfeasors; thus, contribution is not permitted.

⁷⁴*Maio v. Fahs*, 339 Pa. 180, 14 A.2d 105; Pa. Stat. Ann. tit. 77, § 671 (Supp. 1976); *Lambertson v. Cincinnati Corp.*, 312 Minn. 114, 257 N.W.2d 679 (1977).

In *Sunspan Eng'r & Constr. Co. v. Spring-Lock Scaffolding Co.*, 310 So. 2d 4 (Fla. 1975), the Florida Supreme Court invalidated an amendment to the state's compensation law which precluded third party tortfeasors from impleading employers in negligence actions.

⁷⁵*Witt v. Jackson*, 57 Cal. 2d 57, 17 Cal. Rptr. 369, 366 P.2d 641 (1961); *Hunsucker v. High Point Bedding & Chair Co.*, 237 N.C. 559, 75 S.E.2d 768 (1953); *Santisteven v. Dow Chemical Co.*, 506 F.2d 1216 (9th Cir. 1974).

recover from an employer the portion of the assessed damages attributable to the employer's negligence.⁷⁶ Under Wisconsin's comparative negligence approach, the causal negligence of all actors, including the employer, must be considered and apportioned,⁷⁷ even though the employer may not be held liable for more than his compensation outlays. A similar rule has been adopted by federal courts for application to the Longshoremen's and Harbor Workers' Compensation Act.⁷⁸

Indemnification differs from contribution in that it relieves one party of all liability. A party's right to indemnification will result in his being fully reimbursed for the damages he has paid by the wrong-doer "more responsible" for the plaintiff's injury. Although indemnity against a negligent employer has also been generally denied in work-related product cases, there are some important exceptions to the majority position.

The right of a manufacturer to secure indemnity from a negligent employer was recently upheld in both Minnesota and Florida.⁷⁹ Indemnification claims in other states have been upheld in certain specific situations. When the third party's claimed right to indemnity arises out of an express contractual undertaking by the employer to hold the third party harmless, this has usually been enforced. In recent years, though, courts have shown increasing reluctance to validate such contractual provisions in the context of strict liability, enforcing them only when certain rigid requirements have been met.⁸⁰ Indemnity has usually been allowed against an employer who has breached a duty owed to the third party who thereby has become liable for damages to an injured party.⁸¹ In such cases, the third party's liability generally

⁷⁶The original statement of the rule occurred in a case involving a defendant manufacturer's suit for indemnity from the employer of the plaintiff's deceased husband. The court of appeals allowed the manufacturer's action under the new apportionment rule that "where a third party is found to have been responsible for a part, but not all, of the negligence for which a defendant is cast in damages, the responsibility for that part is recoverable by the prime defendant against the third party. To reach that end there must necessarily be an apportionment of responsibility in negligence between those parties." *Dole v. Dow Chemical Co.*, 30 N.Y.2d 143, 331 N.Y.S.2d 382, 386-87 (1972).

⁷⁷*Heldt v. Nicholson Mfg. Co.*, 72 Wis. 2d 110, 240 N.W.2d 154 (1976); *Jagmin v. Simonds Abrasive Co.*, 61 Wis. 2d 60, 211 N.W.2d 810 (1973).

⁷⁸*Frasca v. Prudential-Grace Lines, Inc.*, 394 F. Supp. 1092 (D. Md. 1975).

⁷⁹*Carlson v. Smogard*, 298 Minn. 362, 215 N.W.2d 615 (1974); *Sunspan Eng'r & Constr. Co. v. Spring-Lock Scaffolding Co.*, 310 So. 2d 4 (Fla. 1975).

⁸⁰See, for example, *Sterner Aero AB v. Page Airmotive, Inc.*, 499 F.2d 709 (10th Cir. 1974). See also Stephen C. Parker, "The Warranty Disclaimer v. Manufacturer's Product Liability—*Sterner Aero AB v. Page Airmotive, Inc.*: Did the Tenth Circuit Bury Disclaimer Alive?" 10 Tulsa L.J. 612 (1975).

⁸¹*Lunderberg v. Bierman*, 241 Minn. 349, 63 N.W.2d 355 (1954); *Baugh v. Rogers*, 24 Cal. 2d 200, 148 P.2d 633 (1944); *Bowman v. Atlanta Baggage & Cab Co.*, 173 F. Supp. 282, 176 F. Supp. 575 (D.C. Fla. 1959); *U.S. Fidelity and Guar. Co. v. Kaiser Gypsum Co.*, 273 Or. 162, 539 P.2d 1065 (1975).

exists only because of its financial or statutory responsibility for a specific activity while the tortious act was committed solely by the employer. Indemnity can also sometimes be obtained by a "passive" or "secondary" tortfeasor from an "active" or "primary" tortfeasor; however, courts have rendered conflicting decisions on this point.⁸²

The question of what constitutes a "passive" tort as opposed to an "active" one in the workplace context of product-related injuries is an extremely difficult one. In the case of an injury caused by a product that has been altered by the employer so as to render it unsafe, the finding of negligence may depend on "who was actually the proximate cause of the plaintiff's injuries or where the greatest quantum of negligence lies."⁸³ Where the more "active" or "primary" negligence lies may also depend on whether the alteration of the product was foreseeable by the manufacturer.⁸⁴

The Third Party's Affirmative Defenses

Although in many cases a third party manufacturer may not be allowed to secure contribution or indemnification from a negligent employer, the injured party's status as a "worker" and the existence of the employer as an intermediary between the manufacturer and the injured person may afford the third party certain affirmative defenses.

Factors associated with the injured party's status as a "worker" include the effects that his experience, knowledge, and expected standard of conduct have upon the manufacturer's duties to warn him of hazards associated with the product and to guard him against nonobvious dangers. Generally, the manufacturer is held to a less stringent standard of care with regard to warnings and safety devices when the user of the product is a worker experienced and knowledgeable about the proper use of the product.⁸⁵ Similarly, the defense that an

⁸²Indemnity has been allowed in a number of cases. See, e.g., *Trail Builders Supply Co. v. Reagan*, 235 So. 2d 482 (Fla. 1970); *Jones v. McDougal-Hartmann Co.*, 115 Ill. App. 2d 403, 253 N.E.2d 581 (1969). Indemnity has been denied the "secondarily liable" tortfeasor in other instances: *Hunsucker v. High Point*, 237 N.C. 559, 75 S.E.2d 768 (1953); *Slattery v. Marra Bros.*, 186 F.2d 134 (2d Cir. 1951).

⁸³*Kuzin v. Lake Eng'r Co.*, 385 F. Supp. 827, 831 (N.D. Ill. 1974).

⁸⁴See, e.g., *Kuisis v. Baldwin-Lima-Hamilton Corp.*, 457 Pa. 321, 319 A.2d 914 (1974); *Balido v. Improved Mach., Inc.*, 29 Cal. App. 3d 633, 105 Cal. Rptr. 890 (1973). Under the *Balido* view, the user's negligence does not insulate the manufacturer if such negligence was foreseeable by the manufacturer.

⁸⁵A less stringent duty to provide cautionary information to experienced workers was applied in *McDaniel v. Williams*, 23 A.D.2d 729, 257 N.Y.S.2d (1965); *Lockett v. General Electric Co.*, 376 F. Supp. 1201 (E.D. Pa. 1974), *aff'd*, 511 F.2d 1393 and 511 F.2d 1394 (3d Cir. 1975); *Collins v. Ridge Tool Co.*, 520 F.2d 591 (7th Cir. 1975); *Barnes v. Litton Indus. Products*, 409 F. Supp. 1353 (E.D. Va. 1976).

With respect to safety devices, the Pennsylvania Supreme Court has held that a

experienced worker has knowingly assumed the risk inherent in the use of a product has often been used successfully by manufacturers.⁸⁶ Some very recent decisions, however, have exhibited a trend away from upholding such defenses.⁸⁷

The existence of the employer as an intervening actor between the manufacturer and the injured worker sometimes allows the manufacturer to absolve himself from liability by asserting the employer's negligence. In some jurisdictions, courts have held that an injured worker may not recover against a manufacturer if the employer failed to pass along to the worker appropriate warning of a product's hazards.⁸⁸ In others, though, the manufacturer's duty extends to warning the worker who actually uses the product.⁸⁹ Sometimes, the extent of the duty to warn depends on the dangerousness of the product.⁹⁰

If an employer removes a product's safety device or alters the product substantially, unless such removal or alteration is foreseeable, the manufacturer may be absolved from liability for a resulting injury.⁹¹ A

manufacturer has no duty to design a machine with safety devices that guard against hazards obvious to an experienced employee. *Bartkewich v. Billinger*, 432 Pa. 351, 247 A.2d 603 (1968). See also *Sarnoff v. Charles Schad, Inc.*, 269 N.Y.S.2d 22 and 270 N.Y.S.2d 763 (1966), *aff'd*, 292 N.Y.S.2d 93, 239 N.E.2d 194 (1968); *Tomicich v. Western-Knapp Eng'r Co.*, 423 F.2d 410 (9th Cir. 1970) (applying Montana law).

⁸⁶In some few cases it might be found that the plaintiff's experience is so extensive that he has assumed the risk as a matter of law. *Fore v. Vermeer Mfg. Co.*, 7 Ill. App. 3d 346, 287 N.E.2d 526 (1972). More often the experience question as it relates to assumption of risk is held to present a question for the jury. See, e.g., *Rhoads v. Service Mach. Co.*, 329 F. Supp. 367 (E.D. Ark. 1971).

⁸⁷The United States Court of Appeals for the Seventh Circuit observed a trend away from the rule that there is no duty to guard against dangers obvious to experienced workers in *Collins v. Ridge Tool Co.*, 520 F.2d 591 (7th Cir. 1975). Since then, the case most often cited in support of that rule was overruled by the New York Court of Appeals. *Micallef v. Miehle Co.*, 39 N.Y.2d 376, 384 N.Y.S.2d 115 (1976), overruling *Campo v. Scofield*, 301 N.Y. 468, 95 N.E.2d 802 (1950).

Many courts have also recognized the precept that a worker's assumption of risk may not be regarded as unreasonable when he is obliged to perform certain actions under "economic compulsion" as a condition of his employment. See, e.g., *Johnson v. Clark Equip. Co.*, 547 P.2d 132 (Or. 1976); *Merced v. Auto Pak Co.*, 533 F.2d 71 (2d Cir. 1976) (applying New York law).

⁸⁸*Weekes v. Michigan Chrome & Chem. Co.*, 352 F.2d 603 (6th Cir. 1965) (applying New Jersey and Michigan law); *West v. Hydro-Test, Inc.*, 196 So. 2d 598 (La. App. 1967); *Schmeiser v. Trus Joint Corp.*, 540 P.2d 998 (Or. 1975); *Barnes v. Litton Indus. Products*, 409 F. Supp. 1353 (E.D. Va. 1976).

⁸⁹*Eck v. E.I. duPont de Nemours & Co.*, 393 F.2d 197 (7th Cir. 1968) (applying Indiana law); *Jackson v. Coast Paint & Lacquer Co.*, 499 F.2d 809 (9th Cir. 1974) (applying Montana law); *Borel v. Fibreboard Paper Products Corp.*, 493 F.2d 1976 (5th Cir. 1973), *cert. denied*, 419 U.S. 869 (1974); *Helicoid Gage Div. of Am. Chain & Cable Co. v. Howell*, 511 S.W.2d 573 (Tex. Civ. App. 1974).

⁹⁰See *Younger v. Dow Corning Corp.*, 202 Kan. 674, 451 P.2d 177 (1969); *Siebel v. Symons Corp.*, 221 N.W.2d 50 (N.D. 1974).

⁹¹In *Cepeda v. Cumberland Eng'r Co.*, 138 N.J. Super. 344, 351 A.2d 22 (App. Div. 1976), the court held that a manufacturer has the right to assume that a safety device it provides will not be removed. However, a manufacturer may be subject to liability for

showing of superseding negligence may also be satisfied if the employer has failed to enforce or comply with safety regulations,⁹² or if he has not properly maintained his equipment, and this neglect caused the accident.⁹³

Problems and Issues Related to Product Liability and Workers' Compensation

Obviously, product liability actions arising from the workplace reintroduce questions of fault (which the workers' compensation system had sought to eliminate) into the determination of liability for work-related injuries. The negligence of both employer and employee is often at issue, even when the manufacturer's actions are judged by strict liability standards. A survey conducted by the Insurance Services Office in 1976 found that employer negligence was involved in 48 percent of employees' product-related suits, involving 67 percent of the awards made in those suits.⁹⁴

A seven-volume legal study commissioned by the Interagency Task Force on Product Liability devoted considerable attention to the problems associated with product-related injuries in the workplace.⁹⁵

failure to warn where an employer has provided safety devices which (a) may be relied on too heavily by the employee, or (b) may be removed by the employee. *Powell v. E.W. Bliss Co.*, 346 F. Supp. 819 (W.D. Mich. 1972); *Groulie v. Positive Safety Mfg. Co.*, 50 Mich. App. 109, 212 N.W.2d 756 (1973).

The test employed by the courts to determine whether an alteration is a superseding cause is whether the alteration was reasonably foreseeable to the manufacturer. Such a determination is a question for the fact-finder. *Capasso v. Minster Mach. Co.*, 532 F.2d 952 (3d Cir. 1976) (applying Pennsylvania law); *D'antona v. Hampton Grinding Wheel Co.*, 225 Pa. Super. 120, 310 A.2d 307 (1973). If a foreseeable alteration is negligently performed, the manufacturer generally escapes liability. See *Kuisis v. Baldwin-Lima-Hamilton Corp.*, 457 Pa. 321, 319 A.2d 914, at 922 (1974).

⁹²The Third Circuit Court of Appeals has held that superseding negligence exists when the employer fails to enforce his own safety regulations, thus supplanting any negligence on the part of the manufacturer with respect to design or production. *Schrefler v. Birdsboro Corp.*, 490 F.2d 1148 (1974). However, an Illinois appeals court held that alleged negligence of an employer (failure to adequately instruct and supervise an inexperienced employee) must be shown to be the sole cause of the injury before the manufacturer will be relieved of liability. *Stanfield v. Medalist Indus., Inc.*, 34 Ill. App. 3d 635, 340 N.E.2d 276 (1975).

In *Bryant v. Hercules, Inc.*, 325 F. Supp. 241 (W.D. Ky. 1970), the court held that an employer's violation of state and federal safety regulations constituted superseding negligence as a matter of law. However, a California court ruling on a similar claim refused to hold that such a violation was negligence per se and referred the question to the jury. *Balido v. Improved Mach., Inc.*, 29 Cal. App. 3d 633, 105 Cal. Rptr. 890 (1973).

⁹³*Hamel v. Young Spring and Wire Corp.*, 12 N.C. App. 199, 182 S.E.2d 839, cert. denied, 279 N.C. 511, 183 S.E.2d 687 (1971); *Ulrich v. Kasco Abrasives Co.*, 532 S.W.2d 197 (Ky. 1976).

⁹⁴California Citizens' Commission, p. 41.

⁹⁵U.S. Department of Commerce, Interagency Task Force on Product Liability,

Among the concerns raised by the study was its conclusion that an accountability imbalance exists between manufacturers and employers in such cases. "This imbalance may be quite unrelated to the relative culpabilities of the employer and manufacturer, and may also result in reducing the incentives for employers to act to prevent work-related injuries."⁹⁶

Several different proposals for handling claims by injured workers against third party manufacturers have been advanced. These proposals seek in various ways to adjust the allocation of losses between manufacturers and employers when product-related work injuries occur, and to optimize the level of risk-prevention activities. The methods proposed include permitting contribution and indemnity against employers paying workers' compensation benefits, restricting employer subrogation, validating "hold harmless" clauses in contracts between manufacturers and employers, and making workers' compensation the exclusive remedy in work-related product cases.⁹⁷ Each of these proposals would effectively shift some liability from manufacturers to employers. Analysis of the proposals should seek to determine to what extent, in each instance, liability is shifted to the most efficient, least costly accident avoider, how the proposal would affect administrative and legal costs, and to what extent the proposed change signals a departure from the public policy goals of both the workers' compensation system and the civil justice system generally.

A BRIEF DISCUSSION OF PROBLEMS AND ISSUES

The preceding discussion has highlighted a great many perceived problems and issues which confront the workers' compensation system today. As the system has expanded to include more workers and more kinds of work-related injuries and illnesses, the handling of claims has become characterized by a high degree of uncertainty. Particularly in

Product Liability: Final Report of the Legal Study, U.S. Government Printing Office, January 1977: Vol. 2, pp. 177-222; Vol. 6, pp. 1-96.

⁹⁶U.S. Department of Commerce, Vol. 6, p. 3.

⁹⁷For discussions of the various proposals, see Jonathan M. Weisgall, "Product Liability in the Workplace: The Effect of Workers' Compensation on the Rights and Liabilities of Third Parties," 1977 Wis. L. Rev. 1035; Jeffrey O'Connell, "An Immediate Solution to Some Products Liability Problems," 1976 Ins. L.J. 683; Clifford Davis, "Third Party Tortfeasors' Rights Where Compensation-Covered Employers Are Negligent—Where Do *Dole* and *Sunspan* Lead?" 4 Hofstra L. Rev. 571 (1976); Richard A. Epstein, "Coordination of Workers' Compensation Benefits with Tort Damage Awards," 13 Forum 464 (1978); Jeffrey O'Connell, "Bargaining for Waivers of Third Party Tort Claims: An Answer to Product Liability Woes for Employers and Their Employees and Suppliers," 1976 U. Ill. L.F. 435; Merton C. Bernstein, "Third Party Claims in Workers' Compensation: A Proposal To Do More with Less," 1977 Wash. U.L.Q. 543.

cases of illness resulting in long-term disability, workers cannot be certain of receiving benefits or of the amount they will receive. With the advent of occupational disease and cumulative trauma claims and the movement toward increasing and indexing long-term benefit levels, employers are uncertain about the extent of their liability, while insurers find it difficult to predict costs with the degree of certainty they experienced in past decades. Rapidly escalating inflation has compounded everyone's problems by rendering existing benefit levels less and less adequate for disabled workers and by pushing employers' and insurers' costs for covering income payments and medical care upward at a rapid pace, again hampering projections of future costs.

Current attempts to reduce uncertainties that were not envisioned in the original concept of workers' compensation have led to large proportions of contested cases and compromise and release settlements. Although frequent litigation seems to heighten uncertainty in the short run, in the long run it may resolve current questions and establish firm precedents for future administration of the system. On the one hand, using the civil justice system to resolve disputes over compensability and the liability of third parties may reestablish the boundaries of the workers' compensation system—by clarifying the nature and extent of employer liability and the employee's right to compensation under evolving concepts of occupational injury. On the other hand, excessive resort to the courts may be symptomatic of the ineffectiveness of current claims administration. Heavy judicial involvement heightens uncertainty in the short run and may increase dissatisfaction with the system to the point where radical changes in, or even abandonment of, the system receives widespread support.

The suggestion that the workers' compensation system be dismantled and its components subsumed under other programs—social welfare programs for income maintenance, national health insurance, and OSHA, for example—has been advanced fairly regularly over the past decade or so. The National Commission considered and rejected such a proposal in 1972, stating:

This systematic disassembling of workmen's compensation may become feasible in some other era, but we are convinced the problems associated with this approach are too serious to justify the strategy now. . . . Most alternatives to workmen's compensation involve an expanded role for the federal government. This Commission has seen no evidence to suggest that federal programs are better administered than state workmen's compensation programs.⁹⁸

⁹⁸National Commission on State Workmen's Compensation Laws, *Report*, pp. 120-121.

Another frequently proffered approach to improving the compensation system is the setting of national standards. Over the past 20 years, recommended standards for state workers' compensation laws have been published by the Department of Labor, the International Association of Industrial Accident Boards and Commissions, and the Atomic Energy Commission. (AEC was concerned with the issue of compensability for workers exposed to ionizing radiation.) The Council of State Governments proposed a model act for "Workmen's Compensation and Rehabilitation Law" in 1965. None of these attempts to encourage state reforms had met with substantial success by the time the National Commission concluded its study in 1972. Having issued its own recommendations, the Commission urged that the states' records of compliance be reviewed in 1975, and that federally mandated standards be issued at that time if necessary to guarantee compliance.

Federal standards bills have been introduced in every session of Congress since 1973 but have not yet been enacted, in part because the earliest proposals depended on heavy federal involvement in the administration and enforcement of state workers' compensation laws. More recent proposals would leave the greater share of administrative authority with the state agencies. However, such proposals have failed to gain sufficient support because of fears that they will have an inflationary impact on the economy and that they will create "administrative chaos." Proponents of federal standards are mainly concerned that workers' compensation benefits be adequate and certain. Opponents argue that expanding benefit levels and definitions of compensability without tightening current administrative controls and procedures will create confusion and unpredictable costs while weakening incentives for safety, rehabilitation, and return to work.

CONCLUDING REMARKS

In this section we have attempted to present an overview of the workers' compensation system in the United States. In the process we summarized many of the crucial legal issues surrounding the system. We analyzed the current status of coverage, income protection, medical care and rehabilitation provisions, safety incentives, and methods of delivering benefits, and discussed plans that have been suggested for altering them. We also document some of the recent growth in law suits designed to extend liability for work-related injuries and diseases beyond the boundaries initially defined by workers' compensation.

In contrast to the broad scenario of legal questions developed in Sec. II, we attempt to provide in Sec. III an in-depth analysis of two of the

most important *economic* issues surrounding workers' compensation. These issues are the adequacy of income replaced by workers' compensation and the degree to which workers' compensation as we know it provides incentives for worker health and safety. The topics chosen for Sec. III are the most well-researched economic issues involving workers' compensation. Special attention is paid to presenting the most recent evidence on these issues. Section III also analyzes briefly some recently proposed alternatives to the current workers' compensation system that are intended to expand its income protection or increase its safety incentives. Section IV identifies some areas in which further research seems warranted.

III. A MORE DETAILED ANALYSIS OF THE ECONOMICS OF WORKERS' COMPENSATION

THE ECONOMICS OF INDUSTRIAL INJURIES AND DISEASES

Work-related injuries and diseases are undesirable by-products of the creation of goods and services for consumers.¹ As such, they are similar to noise, smoke, and other forms of pollution. Moreover, both the abatement of pollution and the limitation of industrial diseases can be costly. In addition to expenditures for safety equipment, a firm may incur implicit costs in order to improve worker health and safety. Such costs include lowering the temperature of a chemical process below the maximum efficiency level and slowing the assembly line pace. Both actions reduce output below what it would be in their absence. However, though safety and efficiency concerns often conflict, some kinds of equipment or process changes can simultaneously improve safety and efficiency. At times, costs may actually decline when jobs are made less dangerous. A lower incidence of injury or disease lowers labor costs in two ways. First, reducing employee turnover decreases expenses of recruiting, screening, and training replacement workers. Second, firms with safer working conditions can offer lower salaries than firms that expose workers to higher risks of injury or disease.² The common link between wages and a worker's willingness to confront risk was noted in a column by Jack Anderson:

We sent our associate Vicki Warren to work undercover at the Washington regional bulk mail center, and when she saw the appalling condition the facility's employees must work in, she asked them why they didn't quit. The universal response was that the pay was too good to pass up. The postal workers are, in effect, being paid to risk life and limb.³

Figure 1 depicts the relationship between a representative firm's expenditures (both explicit and implicit) on the prevention of worker

¹This section draws heavily on the material in Belton M. Fleisher and Thomas J. Kniesner, *Labor Economics*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1980, pp. 169-178.

²Robert Stewart Smith, "Compensating Wage Differentials and Public Policy: A Review," *Industrial and Labor Relations Review*, Vol. 32, No. 2, 1979, pp. 339-352.

³*Washington Post*, March 7, 1979, p. B16.

injury and disease (E) and the fraction of its work force that will be injured or become ill during a given period (i), holding constant its total number of employees. Many different levels of safety (disease or injury) are possible. It is assumed that a firm can lower the level of injury or disease by spending more on prevention. Alternatively, if little is spent, few employees escape harm. The relationship between the firm's expenditures on safety and the number of injuries may be thought of as a *safety production function*. This function will change in slope and position according to the degree of hazard associated with a firm's type of production. Some industries are more innately safe or hazardous than others.

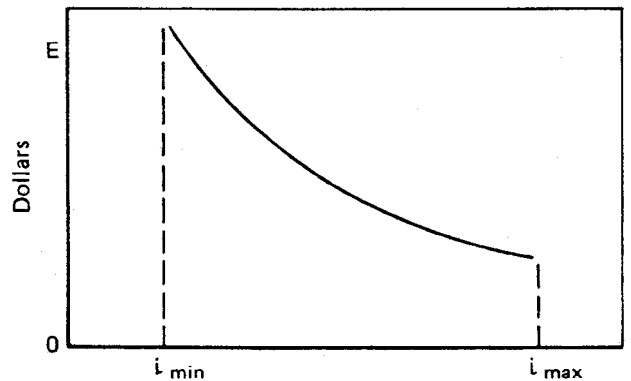


Fig. 1—A firm's safety production function

All firms, whether competitive, monopolistic, oligopolistic, or non-profit, will typically seek to minimize production costs. The total production cost is composed of labor service purchases, nonlabor (capital) inputs, and safety expenditures. Efforts to minimize costs result in measurable levels of injury rate. The marginal cost of safety (MCS) is defined as the increase in production costs stemming from the increase in expenditures (E) as safety improves. In Fig. 2, MCS slopes upward, indicating that it is relatively cheap to make a small improvement in safety when many workers become ill or injured, whereas it is expensive to reduce injury and disease when safety is near perfect. Improved plant safety also decreases costs by lessening the need to replace disabled workers and to pay the high wages associated with risky jobs. These reductions in production costs equal the firm's marginal benefit

of safety (MBS). In Fig. 2, MBS slopes downward because the wage premium required by workers to accept a risk of injury or disease and the firm's (nonwage) costs of hiring additional workers are both assumed to vary directly with i . Worker safety (s) is measured by $1 - i^*$, with i the fraction of employees that does not sustain injury or disease.

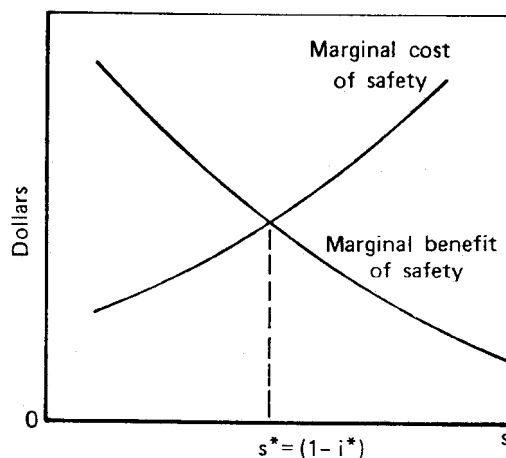


Fig. 2—Determining a firm's injury rate

An increase in industrial safety, i.e., a decrease in injury rate (i), decreases the firm's total production cost whenever MBS exceeds MCS and increases it whenever the reverse is true. Thus, to minimize costs, the firm must find the level of total expenditures on safety and disease prevention that equates the marginal benefit of safety to the marginal cost of safety. In Fig. 2 this level occurs at injury rate i^* (safety rate s^*). At a safety rate lower than s^* , extra safety is a "good buy;" safety in excess of s^* costs more than it is worth (to the employer), resulting in some number of work-related injuries or illnesses. Perfect safety would generally be too costly even if it were technically feasible.

Workers' compensation was introduced in recognition of the fact that industrial injuries and diseases are unfortunate by-products of the employment relationship. The design of the workers' compensation system attempts to balance two major public policy concerns regarding the allocation of these accident costs: concerns about social efficiency and about social equity. Social efficiency may be said to exist when the legal system assigns responsibility for accident or illness costs in a way

that leads workers and firms to minimize the sum (to all parties) of prevention costs as well as the costs of actual injuries.⁴ Evidence conflicts as to whether the tort system preceding workers' compensation—which placed industrial accident costs on the shoulders of employees except in cases of successful negligence actions—was more or less socially efficient.⁵ However, there are many ways to assign financial responsibility that will minimize the total costs of accidents, diseases, and their prevention.⁶ One means for assessing the social efficiency aspects of current workers' compensation laws is to evaluate how they affect industrial safety. In this section, we discuss economic approaches to this kind of assessment and present econometric evidence on the issue.

The question of social equity, that is, whether the costs of accidents and diseases are allocated in a fair manner, is also pursued in this section. In Sec. II we noted that the introduction of workers' compensation appeared to be a response to the widespread perception that workers' common-law remedies produced unjust financial burdens.⁷ One of the most important elements in assessing the social equity effects of workers' compensation is the extent to which the system's benefit structure protects injured workers from economic hardship. We examine how wage loss replacement can be determined and the real replacement ratio evaluated to assist social equity policy considerations.

THE EFFECT OF WORKERS' COMPENSATION ON INDUSTRIAL SAFETY

Oi points out that whether workers' compensation affects the level of industrial injuries and diseases depends on whether workers are cognizant of such hazards in the absence of workers' compensation.⁸

⁴See John Prather Brown, "Toward an Economic Theory of Liability," *Journal of Legal Studies*, Vol. 2, No. 2, June 1973, pp. 323-350.

⁵For conflicting evidence regarding the social efficiency of early systems, see James L. Croyle, "Industrial Accident Liability Policy of the Early Twentieth Century," *Journal of Legal Studies*, Vol. 7, No. 2, June 1978, pp. 279-298; and James Robert Chelius, "Liability for Industrial Accidents: A Comparison of Negligence and Strict Liability Systems," *Journal of Legal Studies*, Vol. V, No. 2, June 1976, pp. 293-309.

⁶Brown, pp. 323-350.

⁷However, Croyle (pp. 279-298) presents data that injured workers fared reasonably well under the common-law system and that it was *employers* who favored the adoption of workers' compensation (to reduce their financial responsibility), while unions opposed workers' compensation and pushed instead for legislation modifying the defenses available to employers in tort liability suits.

⁸Walter Y. Oi, "An Essay on Workmen's Compensation and Industrial Safety," *Supplemental Studies for the National Commission on State Workmen's Compensation Laws*,

Introducing workers' compensation probably has little or no effect on work safety if workers are already well informed about the likelihood and severity of industrial injuries. In the case of perfect information, workers' compensation insurance simply substitutes for direct wage payments, and workers purchase less private injury insurance; it does not influence workers' decisions about assuming risk.

Because workers' compensation does not directly alter work hazards or workers' willingness to accept risk but rather regulates how the pay package is distributed between direct wage payments and insurance premiums, employers' wage payments (workers' total earnings) also should be unaffected by workers' compensation. In other words, while prior to the implementation of workers' compensation employers compensated workers for expected income losses (due to injury) with higher wages, after implementation employers pay an insurance premium to protect the worker against injury and illness. If the insurance is actuarially "fair," then the total cost to employers (income of workers) is the same under both arrangements.⁹ Thus, in Fig. 3, MBS is the marginal benefit of safety before and after workers' compensation, and the equilibrium safety rate remains at s^* .

Should workers underestimate the true risk of industrial injury or disease, then the pay premium received for exposure to job-related hazards is "too low." In this case, MBS lies below MBS' , the marginal benefit of safety schedule associated with the "correct" premium. The equilibrium safety rate, s^* , is less than that which would characterize a labor market where workers correctly gauged injury risk, s' . It is possible that the forced consumption of insurance awakens workers to the true degree of hazard associated with their jobs. This awareness increases the equalizing wage rate differential so that the marginal benefit schedule will shift to MBS' . In this case, workers' compensation results in an increase in the level of industrial health and safety.¹⁰

Finally, it is possible for workers' compensation to lead to a reduction in the level of industrial health and safety. Should MBS' represent the marginal benefit of safety before the passage of workers' compensation because workers systematically overestimate the severity of indus-

Vol. 1, U.S. Government Printing Office, Washington, D.C., 1973, pp. 69-71.

⁹For more discussion of the role played by the premium-benefit structure of insurance, see Peter Diamond, "Insurance Theoretic Aspects of Workers' Compensation," in Alan S. Blinder and Philip Friedman (eds.), *National Resources, Uncertainty, and General Equilibrium Systems*, Academic Press, New York, 1977, pp. 70-74; and Louise B. Russell, "Safety Incentives in Workmen's Compensation Insurance," *Journal of Human Resources*, Vol. IX, No. 3, Summer 1974, pp. 361-375.

¹⁰Remember that before workers' compensation, employers had to supplement the wage rate to induce workers to accept risk. After workers' compensation, the supplement (which then takes the form of insurance premiums) is *increased* if workers' compensation causes workers to make more correct calculations of danger (costs).

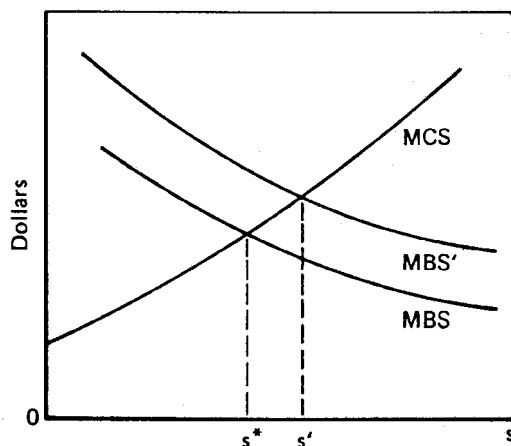


Fig. 3—The effect of workers' compensation on job safety

trial injuries and diseases, then workers' compensation may reduce the level of safety, if insurance leads workers to assess risks more accurately.

Thus, the effect of workers' compensation on industrial injuries and disease is indeterminate a priori even when the nuances of workers' compensation as income maintenance insurance are ignored. Two approaches can elucidate the issues further. One approach is to impose more structure on the model presented in Figs. 1, 2, and 3 by including information on the relative slopes of MBS, MCS, and the way in which the marginal benefit of safety is disturbed by workers' compensation. A second approach is to seek econometric evidence about the level of industrial safety before and after the introduction of workers' compensation.

For our purpose, whether the marginal cost of injury and disease prevention is increasing, constant, or decreasing is irrelevant; increases (decreases) in MBS will still lead to increases (decreases) in job health and safety.¹¹ Thus, if we wish to assess whether or not workers' compensation leads to safer jobs, we must know whether workers

¹¹This is true because for the model presented here to have a stable equilibrium ("make sense"), MCS must cut MBS from below. Of course, reductions in MCS increase safety, and policy (besides workers' compensation) may affect MCS. Thus, *total* knowledge of the issue of industrial safety requires an understanding of factors that shift MCS.

systematically underestimate or overestimate the true degree of injuries and diseases inherent in their jobs and whether or not the imposition of workers' compensation improves the accuracy of these perceptions.

The question of how accurately individuals estimate the likelihood of uncertain events underlies many public policy debates. One justification for public relief of disaster victims, for example, is that the victims did not know the true risks and therefore took "too few" precautions or purchased "too little" insurance. Occupational licensing has been justified on the grounds that clients underestimate the injury they can receive at the hands of "quacks." It is conventional wisdom that individuals systematically underestimate the likelihood of *anything* bad occurring. The typical worker is often characterized as having the philosophy, "It will never happen to me." Chelius argues, however, that this interpretation is no more accurate than one characterizing the average worker as inappropriately fearful of his environment.¹² Laboratory experiments indicate that individuals generally form conservative probability estimates: They tend to treat probabilities near zero or one as being (too) close to one-half, while estimating probabilities near one-half correctly. However, in nonlaboratory settings, individuals appear to evaluate risk less conservatively.¹³ Viscusi presents evidence that when a worker discovers that employment conditions are more hazardous than he initially believed, he quits.¹⁴ So while it seems likely that workers inaccurately assess the risk of a work-related injury or disease, the direction of that bias is not completely clear. Even should we accept the notion that workers systematically *underestimate* job hazards, we still do not know whether imposing workers' compensation reduces that underestimate, leaves it unchanged, or increases it. Because such information is not available, econometric studies are the only means of establishing the safety effect of workers' compensation.

Econometric studies, however, are silent on this topic, except for the work of Chelius.¹⁵ As an admittedly crude approximation to overall industrial injury and disease risk, Chelius adopts the number of deaths due to machinery accidents (other than motor vehicle) in a state

¹²James Robert Chelius, *Workplace Safety and Health, The Role of Workers' Compensation*, American Enterprise Institute for Public Policy Research, Washington, D.C., 1977, p. 7.

¹³David M. Grether, "Recent Psychological Studies of Behavior Under Uncertainty," *American Economic Review*, Vol. 68, No. 2, 1978, p. 71.

¹⁴W. Kip Viscusi, "Job Hazards and Worker Quit Rates: An Analysis of Adaptive Worker Behavior," *International Economic Review*, Vol. 20, No. 1, 1979, pp. 28-58. See also his book, *Employment Hazards*, Harvard University Press, Cambridge, Massachusetts, 1980.

¹⁵Chelius, *Workplace Safety*, Chaps. 4, 5.

relative to its labor force. His data cover the period 1900-1940.¹⁶ As states did not introduce workers' compensation at the same time, Chelius had to make some correction for other possible accident preventing or producing factors, such as the business cycle, medical technology, or the extent of mechanization. In terms of our simple model, Chelius attempts to control for shifts in MCS that would also affect the safety rate during 1900-1940 in order to isolate shifts in MBS caused by the introduction of workers' compensation. He does this by expressing a state's injury risk as the ratio of a state's machinery death rate in a given year to the same rate for the whole United States. This ratio implicitly assumes that the factors mentioned above that might shift MCS, and therefore influence the relative number of work-related injuries, are not likely to have an impact that varies by state.

Besides workers' compensation, numerous factors affecting MBS may have influenced the machinery death rate during 1900-1940. Chelius also controls for changes over time in a state's age/sex composition because such changes may result in different attitudes toward job-related injuries, changes in risk-taking behaviors, or changes in accident proneness. MBS is also affected by safety regulation unrelated to workers' compensation (e.g., direct controls on equipment design). Chelius accounts for such regulation by using as an independent variable whether or not the state had regulations accompanied by legislative appropriations for enforcement. Finally, we noted previously that before workers' compensation, some states eliminated from tort laws certain employer defenses, such as assumption of risk. Chelius controls for this factor in his analysis since it, too, could shift MBS.

Chelius uses the above independent and dependent variables in a regression analysis that pools data across states for 1900-1940. To permit a lag between the time in which workers' compensation, safety regulations unrelated to workers' compensation, and changes in employer's liability laws went into effect, these independent variables are lagged one year (i.e., they refer to the year prior to the dependent variable). He also makes a crude adjustment for factors that may influence injuries but are unknown to the researcher by allowing each state a different intercept term (average level of injuries after accounting for the age/sex composition and legal structure of the state). His results indicate that a change in the tort laws (to reduce the traditional legal defenses of an employer) and the imposition of a workers' compensation system both reduce the rate of machine-related industrial deaths. He

¹⁶Chelius, *Workplace Safety*. Chelius did not analyze other potentially useful data series such as "traumatizations due to various causes" because such series were incomplete. As a point of reference, in 1935, deaths due to machinery accidents accounted for approximately 16 percent of industrial deaths.

found that workers' compensation affected the death rate twice as much as did changes in tort laws. Chelius' results indicate that, on average, if a state's injury rate was 32 percent higher than the national level five years before workers' compensation was introduced, the rate dropped to equal the national level five years after workers' compensation was introduced.

Chelius' work is not econometrically perfect. There are better ways, such as error components models, to account for unmeasured influences on injuries over time within states, at a point in time among states, and across both time and states. Moreover, he does not experiment with alternative lag structures for his independent variables representing regulation, the common law, and workers' compensation. If employers are "rational" in the economic sense, they will respond to expected changes in the legal structure *before* such changes actually occur. Therefore, there is some rationale for letting the variables representing the legal structure coincide with or even precede the data on the injury rate. Nevertheless, Chelius' results represent a reasonable "first pass" at the available data.

Chelius also examines the variation of industrial injuries by state according to the benefit levels of the workers' compensation systems.¹⁷ His data are a cross-section of 17 manufacturing industries in 18 states in 1967. He again uses multiple regression analysis to control for some factors which may cause MBS and MCS to differ across states in an attempt to isolate the partial effect of workers' compensation benefits.¹⁸ Chelius' dependent variable is the number of disabling injuries per million employee hours of exposure. The generosity of the level of workers' compensation benefits is represented by the variation in the percentage of employee injury costs for which employers are liable without fault. Somewhat surprisingly, more generous benefits are associated with *higher* levels of industrial injuries, if all else is held equal. This result holds even when Chelius allows for the possibility that states with more injuries may simply be forcing employers to pay a larger share of accident costs. There is no obvious reason why higher benefit levels should lead to more injuries; it is possible, though, that higher benefits bring about increased reporting of injuries rather than an actual increase in the number of injuries.¹⁹

¹⁷Chelius, *Workplace Safety*.

¹⁸Chelius' list of independent variables includes the percentage of females, the average age, hours of work, rate of new hires, establishment size, (predicted) average wage, and type of industry.

¹⁹There is some empirical support for this phenomenon. Donald O. Parsons, "The Male Labor Force Participation Decision: Health, Declared Health, and Economic Incentives," Ohio State University, Department of Economics, mimeo., 1979, finds that the availability of special disability benefits through Social Security has increased the reporting of ailments.

To summarize, little evidence is currently available concerning the effects of workers' compensation on industrial health and safety. Nothing seems to be known about how workers' compensation affects work-related diseases. What we do know seems to indicate that workers' compensation substantially reduces (narrowly defined) industrial accidents, but that greater dollar benefits are associated with more reported accidents.

WORKERS' COMPENSATION AND THE REPLACEMENT OF LOST INCOME

A major goal of workers' compensation is the alleviation of financial hardship resulting from job-related injury or disease. Income maintenance includes adequate medical care through services or cash payments as well as wage replacement payments. Diamond argues that one of the most important issues surrounding workers' compensation is the distribution of benefits by wage or injury of the recipients.²⁰ Assessing this distribution requires knowledge of the degree to which workers are insured against the economic work-related costs of accidents or illnesses, that is, the fraction of lost income actually replaced by workers' compensation. Although the following discussion will focus on lost earning power, the same principles apply to "lost health."²¹ Before proposals to change workers' compensation replacement rates can be evaluated, it is necessary to understand the proper way to calculate the amount needed to replace earnings over the course of a disability.

In Fig. 4, the top curve represents the life-cycle profile of a typical worker's potential earnings, i.e., the maximum annual earned income possible (including fringe benefits) at any given age, t . Should permanent totally disabling injury or disease occur t_1 years after schooling

²⁰Diamond, p. 74. Diamond also names as important issues the general size of the compensation system and the distribution of costs among firms. See Sec. I for data on the size of workers' compensation. For a discussion of the production and pricing (cost) of workers' compensation by insurers, see W. B. Fairley, "Investment Income and Profit Margins in Property-Liability Insurance: Theory and Empirical Results," *Bell Journal of Economics*, Vol. 10, No. 1, Spring 1979, pp. 192-210, and R. D. Hill, "Profit-Regulation in Property Liability Insurance," *Bell Journal of Economics*, Vol. 10, No. 1, Spring 1979, pp. 172-191.

²¹See Peter S. Barth, "Costs of Occupational Diseases," in *Proceedings of the Interdepartmental Workers' Compensation Task Force Conference on Occupational Diseases and Workers' Compensation, 1976*, prepared by the Subcommittee on Labor of the Committee on Labor and Public Welfare, U.S. Senate, and the Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., 1976, for an analysis of estimating the costs of occupational disease along with some estimates of the costs of lung cancer among chromatic workers.

cases of prolonged disability, an injured worker commonly loses fringe benefits (such as family hospitalization insurance, a pension plan, etc.) which may account for 20 to 30 percent of earnings. Berkowitz and Burton report that the typical total disability occurs between ages 40 and 50.²² If 50 is taken as the typical age of injury and 65 as the typical retirement age, benefits for death or total disability that last less than 750 weeks further reduce the fraction of potential lifetime earnings actually replaced by workers' compensation. Even if workers' compensation replaced all potential earnings based on the most recent wage (t_1Aft_3), the amount would still not replace that portion of lifetime earning potential stemming from wage increases due to inflation, productivity growth, and job tenure (AGF).

Calculations concerning wage replacement rates for permanent partial disability do not, to our knowledge, appear in the literature. Permanent partial disability, to the extent that it indicates loss of wage-earning capacity, is equivalent to a downward shift and (perhaps) a flattening of the lifetime earning power profile. As such, the true loss for a worker retiring at age t_1 is the area BAGJ. Workers' compensation will replace some fraction, say α , of t_1Aft_3 ; thus, the true replacement ratio is $\alpha t_1Aft_3/BAGJ$. Calculating such a replacement ratio requires predicting the earning power of a healthy individual and the pattern of that earning power subsequent to injury or disease. Data exist that would permit such calculations to a reasonable degree of accuracy. Data and calculations such as the ones discussed in this paragraph are regularly used in court suits when permanent partial disability results from, for example, auto accidents. In such suits, defendants are sued for t_1AGt_3 , the true loss.

Berkowitz and Burton estimate that during the late 1960s, workers' compensation had a medium earning power replacement rate of only about 50 percent.²³ In view of the fact that workers' compensation is intended to replace a tort system, where payment is uncertain, with a system guaranteeing replacement of a portion, usually two-thirds, of gross earning power, it would be useful to determine what current replacement rates (particularly since passage of the 1970s benefit reforms) really are for workers with different disabilities and wage levels. It is likely that the true replacement ratio of workers' compensation is less than 66-2/3 percent in at least some types of cases.²⁴

²²Monroe Berkowitz and John F. Burton, Jr., "The Income Maintenance Objective in Workers' Compensation," *Industrial and Labor Relations Review*, Vol. 24, No. 1, 1970, pp. 14-31.

²³Berkowitz and Burton, p. 24. This rate is for a totally disabled worker, aged 52. Of course, the rate is even lower for younger disabled workers.

²⁴An interesting research topic would be to compare the replacement rates of court

Determining workers' compensation's real replacement rate is necessary for understanding how fully the system reimburses injured workers for the losses they have sustained. However, such calculations cannot resolve policy questions about the socially optimal degree of earnings replacement that should be achieved through workers' compensation benefits. The income maintenance objective of workers' compensation must be balanced against the objectives of accident prevention and rehabilitation. Because it is generally assumed that, all else equal, leisure is preferred to work, complete earnings replacement would reduce incentives for workers to avoid illness or injury or to return to work after they are injured. However, maximizing workers' injury avoidance by totally denying compensation clearly violates the basic premise of workers' compensation.²⁵ Legislation has generally established the "correct" income replacement rate as 66-2/3 percent of earnings at the time of injury (with various ceilings and other limitations). However, whether this ratio is the optimum replacement rate has not been analytically established.

Berkowitz and Burton have proposed that two-thirds of expected *lifetime* earnings be replaced.²⁶ The National Commission on State Workmen's Compensation Laws recommended that two-thirds of current gross earnings or 80 percent of current spendable earnings be replaced and that benefits be indexed in cases of long-term disability. Private income maintenance insurance also has a higher replacement rate than workers' compensation. It is not at all obvious, then, that the socially optimal degree of income maintenance is two-thirds of an injured worker's earnings at the time of injury. The proper earnings replacement rate is clearly a topic deserving further analysis and discussion.

ALTERNATIVES TO WORKERS' COMPENSATION

Any discussion of workers' compensation as social policy must address the issue of whether there exists a similar program that produces more safety incentives or greater income maintenance. Since both ob-

settlements for work-related injuries before workers' compensation with the true replacement rates under workers' compensation. For an empirical analysis of the former, see Croyle, pp. 279-298.

²⁵This is the so-called "moral hazard" problem inherent in all insurance; once the costs of an event are shared by the insured and the insurer, the former has less incentive to be diligent in preventing the mishap or in recovering from it. See Isaac Ehrlich and Gary S. Becker, "Market Insurance, Self-Insurance, and Self-Protection," *Journal of Political Economy*, Vol. 80, No. 4, 1972, pp. 623-648.

²⁶Berkowitz and Burton, p. 29.

jectives are socially desired, such a program would represent a social improvement over workers' compensation as it currently exists. We examine three proposals for improving upon the outcomes of the current workers' compensation system.

The current workers' compensation system could be replaced with a blend of safety standards, health insurance, and a general income maintenance program. The Occupational Safety and Health Act safety standards could be used to achieve a desired level of industrial health and safety. National health insurance or private health insurance and an income support scheme such as Aid for Families with Dependent Children or negative income tax could be used to provide the income replacement and medical payments currently provided by workers' compensation. This proposal can probably best be understood by examining each of its components in turn.

OSHA, or any other job safety standard, attempts to influence work-related injuries or diseases by requiring employers to spend more than they normally would on safety equipment and loss prevention activities. In terms of Figs. 1 and 2, OSHA places a lower boundary on expenditures that exceed the level associated with s^* . While the intended effect is to reduce injuries, a requirement of this sort affects firms adversely (reduces their profits) because the extra safety costs outweigh the financial benefits. It is not difficult, then, to understand why OSHA has received such a hostile response from the business community.²⁷

Thus, to be effective (i.e., increase s), safety standards must be accompanied by a threat of financial punishment for noncompliance. Since it is unlikely that every noncomplying firm will be caught, firms no doubt weigh the likelihood of punishment against the cost of compliance. However, even total compliance with safety standards will not greatly decrease industrial injuries and disease if the standards themselves do not eliminate those hazards that cause the most accidents. Studies in Wisconsin and New York²⁸ have indicated that while compliance with standards can eliminate a quarter to a third of hazards leading to industrial injuries, most injuries seem to stem

²⁷Moreover, through its particular mix of safety specifications, OSHA is implicitly setting a level of safety. Since it is extremely unlikely that the specified blend of inputs is the cheapest way to achieve the (implicitly set) safety level, OSHA, in effect, also requires firms to achieve the level in an inefficient way. It would make more sense economically to require firms to achieve a given level of safety, but allow them to determine the least costly way of doing so.

²⁸Robert Stewart Smith, *The Occupational Safety and Health Act: Its Goals and Its Achievements*. American Enterprise Institute for Public Policy Research, Washington, D.C., 1976, p. 65.

either from transitory hazards or from worker carelessness.²⁹ In his empirical work, Smith³⁰ cannot reject the hypothesis that the injury rate in heavily inspected industries in the early 1970s was the same as it would have been without OSHA safety inspections.³¹

Concerning this alternative to workers' compensation, Chelius speculates that the income security arrangement in such a package would be financed by a tax on households or payrolls in general.³² In contrast, workers' compensation (because of the experience rating of insurance premiums) operates as an income security system financed by what is, in effect, a tax on injuries. Chelius noted that under the alternative program, a firm's safety incentives would be reduced because tax payments would not vary proportionately with the number of injuries. This alternative would require increased safety regulation with the associated problems noted above. The same logic holds concerning the earlier noted suggestion that medical care be provided through national health insurance. Again, costs would be borne by individuals not directly involved in the accident, thereby decreasing the safety incentives of those involved.

Since it seems undesirable to permit a patchwork of existing policy to fill the void left by eliminating workers' compensation, there may be a way to improve workers' compensation safety incentives while essentially leaving untouched its income maintenance provision. Chelius offers a two-part proposal to improve workers' compensation.³³ First, he recommends restructuring workers' compensation benefits to concentrate on serious disabilities—coupled with a corresponding savings from the de-emphasis on minor injuries. This restructuring, while preserving the income security feature of workers' compensation, should increase disincentives for the carelessness that results in small injuries. Chelius' proposal could be implemented by extending the waiting periods and setting benefits at minimal levels for the first few months. Benefits would also include more generous payments for death and permanent disability and less generous payments for permanent partial disability involving no long-term wage loss. Under this latter reform, employers would be assigned a strict partial liability for

²⁹However, OSHA may reduce carelessness by alerting workers to the issue of job safety.

³⁰Smith, *The Occupational Safety and Health Act*, p. 69. For further discussion and empirical documentation of OSHA's (in)effectiveness, see W. Kip Viscusi, "The Impact of Occupational Safety and Health Regulation," *Bell Journal of Economics*, Vol. 10, No. 1, Spring 1979, pp. 117-140.

³¹However, given the difficulties of identifying and allocating the costs of industrial diseases, enforcing standards may be worthy of research as the socially optimal way to influence this type of job hazard.

³²Chelius, *Workplace Safety*, pp. 35-36.

³³Chelius, *Workplace Safety*, Chap. 5.

work-related injuries and diseases. In other words, employers would be automatically (through workers' compensation) responsible for replacing a substantial portion of wages lost as a result of a serious affliction, while workers would be largely responsible for wages lost as a result of short-term disability. The advantage of Chelius' proposal seems to lie in its shifting the responsibility for small injury costs to the workers (who are thought to be in a better position to prevent such injuries) and the costs of severe injuries to employers (who are thought better able to prevent serious injury).

As the second part of his proposal, Chelius suggests that workers be permitted to sue for damages for pain and suffering under workers' compensation. This suggestion again implies that employers are better able to reduce severe injuries, the injuries most responsible for pain and suffering by workers. Chelius' proposal has been criticized for reintroducing the adversary process of the tort system. In order to avoid the potential overuse of the option to sue, however, Chelius also recommends that strict criteria (such as gross negligence—usually considered behavior more imprudent than simple carelessness) be used to determine fault. Chelius feels that a relatively stringent liability standard would keep suits to a manageable number but give employers additional financial incentives for safeguarding their employees.

Kasper suggests that workers' compensation be changed so that *both* workers and employers be required to buy insurance against work-related diseases and injuries.³⁴ Under Kasper's plan, insurance would provide full coverage for income loss, medical bills, and pain and suffering. In short, the legally negligent party would bear the total economic cost of his or her actions. Because he sees excessive litigation as less of a potential problem than does Chelius, Kasper suggests that a negligence rather than a gross negligence standard be used to assign fault. Finally, he suggests that the worker's insurance company pay promptly when disease or injury occurs, i.e., prior to determination of fault. The two insurance companies would ultimately settle, either through negotiation or litigation, the issue of fault, and therefore, the question of which party (insurance company) pays the damages. Kasper also suggests that damage awards be indexed for interest charges to remove the financial incentive for the employer's insurance company to forestall settlement. Experience rating of premiums would provide incentives to employers to reduce accidents (in addition to those incentives stemming from the ability of a worker to recover the full economic losses of an injury or disease). Kasper's proposal, like Chelius', is controversial in that it, too, represents a partial return to

³⁴Daniel Kasper, "An Alternative to Workmen's Compensation," *Industrial and Labor Relations Review*, Vol. 28, No. 4, July 1975, pp. 535-548.

the tort system that preceded workers' compensation. Moreover, Kasper's proposal is flawed in its failure to work out the details of providing and paying for the extra insurance required.

In conclusion, having examined the conditions under which workers' compensation provides incentives for a safer workplace, we found some limited empirical support for the hypothesis that a reduction in work-related injuries followed the introduction of workers' compensation in the United States. We also noted that little is known about the amount of lost earnings replaced by workers' compensation. In discussing three plans for increasing the income support provided injured workers and the incentives for a safe workplace, we found two of the plans controversial because they call for a reintroduction of suits for full damages. In Sec. IV, we suggest some useful research on workers' compensation in particular and on social insurance against income loss due to work-related injuries or diseases in general.

IV. SUGGESTIONS FOR RESEARCH

The two major areas of research suggested in this report involve (1) examining how the workers' compensation system produces its outcomes, and (2) predicting the effects of proposed reforms on the income, health, and job safety of workers. This section outlines some key research topics within these two major areas. Specific hypotheses and methods for testing these topics are not developed in detail. Our goal is simply to recommend research topics that seem to provide the key to understanding the impact of workers' compensation on employers, workers, insurers, and program administrators.

UNDERSTANDING THE PRODUCTION OF SYSTEM OUTCOMES

Workers' compensation is meant to assign certain but limited liability to employers for work-related injuries and illnesses. Administering changing definitions of that liability has generated inconsistencies that trouble employers, insurers, and workers alike. To eliminate these inconsistencies and reduce the uncertainty of outcome, it is necessary to answer the following questions:

- How do the practices of various actors within the workers' compensation system—administrators, insurers, employers, lawyers, employees, and unions—affect the system's outcomes (i.e., who pays and is paid, how much is paid and how promptly)?
- How do statutes, administrative rulings, and judicial interpretations of the laws affect the outcomes of the system?
- How do the rules that govern compensation affect the behaviors of the key actors? How do the actors seek to cope with uncertainties created by changes in the rules?

To answer these questions, it would be useful to study how administrative practices affect disposition of claims across states. State administrative agencies vary greatly in their structure, staffing, funding, and claims handling. There are also wide disparities among states in the promptness of payment, frequency of contested cases, and proportion of compromise and release settlements. An empirical study relating state agency practices (as they interact with practices of insurers, employers, and unions) to outcomes across states would be helpful in

identifying problem areas amenable to state-level solution. Such a study would elucidate how each set of actors influences or responds to changes in the claims handling practices of other sets of actors.

It would also be useful to survey closed claims in order to uncover the causes of litigation. Records of workers' compensation claims closed in 1973 and 1975 have been used to examine the handling of occupational disease cases, the delivery of workers' compensation benefits (including overlap with other private and public insurance programs), and the effectiveness of rehabilitation services. Examining workers' compensation claims could also reveal what kinds of claims inspire litigation, who begins litigation and why, and how various kinds of disputes are resolved. Interviews with claimants, insurers, employers, and other relevant parties could trace the exact progression of claims through the workers' compensation system and identify at what points adversarial relationships develop.

Another fruitful area of research would be to compare the effects of judicial rulings across states on the behavior of claimants, employers, and insurers. States have differing legal criteria for establishing the work-relatedness (compensability) of occupational disease, cumulative injury, or cumulative trauma claims. These differing criteria may affect the flow and outcome of cases, insurance rates and availability, and employer safety precautions. A study of the evolution of legal doctrine in selected states, supplemented by interviews, would identify how the involved parties respond to the ways in which workers' compensation is currently administered and compensability is determined. The effects of legal rules governing subrogation, contribution, and indemnity on the frequency and outcomes of third party actions—as well as the effects of these rules (taken singly and combined) on employer and manufacturer safety incentives—should be examined.

Finally, a study of the outcomes of federally administered compensation programs would illuminate the current debate on federal standards for workers' compensation laws and occupational disease determination. Such a study would examine claims processing, benefit awards, insurance rates, insurance availability, and system utilization under existing federal programs that compensate workers for job-related injuries or diseases. A review of data—culled from sources such as the General Accounting Office study on claims handling under the Federal Employees' Compensation Act, the testimony on the Longshoremen's and Harbor Workers' Compensation Act, and testimony in the Federal Standards Act hearings—would elucidate the practical implications of adopting federal standards. This effort could be supplemented by empirical investigation of the determinants of the outcomes (such as frequency of litigation, costs, number and types of claims) that vary among federal regions administering federal compensation stat-

utes such as the Longshoremen's and Harbor Workers' Compensation Act. If administrative variables are critical, they would be more easily isolated in such a controlled study than in cross-state comparisons where legal parameters differ.

In addition, a crude projection of costs to the business community and the insurance industry of proposed federal occupational disease standards could be obtained by examining the costs incurred and benefits delivered under occupational disease standards established by the Black Lung Benefits Acts. Expanded coverage of diseases under workers' compensation would shift some costs from other benefit programs to the workers' compensation system. By examining the costs of those existing programs benefiting workers with occupational diseases, it may be possible to estimate the additional costs of expanding coverage under workers' compensation.

EVALUATING PROPOSED SYSTEM CHANGES

There are at least four possible methods for evaluating the degree to which the job safety, income, and productivity of workers respond to changes in the parameters (primarily benefit levels and workers and ailments covered) of workers' compensation.

One method is to examine how injury and disease claims in countries with workers' compensation systems vary according to the characteristics of the programs. While differences among the legal, administrative, and industrial environments of different countries pose obvious obstacles to generalization in international studies, careful selection of comparable industries can allow qualified evaluation of the outcomes of approaches that have not been tried in this country.

Another method of examining the social effects of workers' compensation changes is to create a simulation model that considers production, wages, and job injuries in a general equilibrium context. In addition to illuminating how workers' compensation may conflict with or be reinforced by the Occupational Safety and Health Act, the model would also point out the type of information necessary to understand the overall economic impact of workers' compensation. Any simulation model will require information in at least five areas. These five sub-projects should investigate:

1. The degree to which workers accurately assess the risk of incurring work-related injuries or disease. This information could be obtained through surveys or small-scale laboratory experiments. This information is also necessary to evaluate the effect of workers' compensation on changes in labor supplied.

2. The production and pricing of workers' compensation policies by insurance companies. Insurance industry practice must be understood in order to evaluate the social impact of workers' compensation, which has privately produced insurance as a central feature, and to assess the problems that insurance companies may encounter with recently proposed federal workers' compensation standards legislation. Because, for example, workers' compensation insurers cannot generally control their own rates, it is important to know whether enactment of legislative changes or federal standards would have the undesirable side-effect of causing many companies to cease providing workers' compensation insurance.
3. The relation between production of goods and services and industrial injuries and diseases (as the latter is a by-product of the former). Information about how injuries and diseases respond to production practices and safety measures is necessary to determine, for example, the response of employers to tax credits for introducing safety measures. At a minimum, the industrial engineering, health, and hygiene literature on these topics should be surveyed.
4. The degree to which disease and injury reporting and duration of disabilities (rehabilitation) respond to workers' compensation coverage provisions and benefit levels. The liberalization of benefits may result in phony or nuisance claims (as experience with Special Social Security Disability Benefits seems to indicate). It would be useful to review the literature on the demand for program benefits (or charity in general) and to determine how demand responds to level and ease of obtaining benefits.
5. The true fraction of real income loss (caused by industrial injuries and diseases) currently replaced by workers' compensation insurance. (Techniques for determining income loss were outlined in Sec. III.) The degree to which other program benefits overlap with workers' compensation and the repercussions of indexing workers' compensation benefits against inflation should be analyzed. This information, valuable in its own right, is needed to gauge the effects of increased benefits on job safety, insurance availability, labor supply, program usage, income support levels, and rehabilitation.

Another method of examining the social effects of changes in the parameters of workers' compensation (including the relative costs of the litigation attached to the various alternatives to workers' compen-

sation) would be to conduct a social experiment on a large enough scale to produce reliable results. Such experiments have proved successful in studying the labor market effects of a negative income tax. It is important to caution that (1) such an involved and expensive experiment must be efficiently constructed to provide critical, currently unavailable data, and (2) the experiment may be so protracted (as is often the case with social experiments) that the original policy issues may have shifted by the time the findings become available.

Finally, it would also be useful to study those naturally occurring experiments in states where alternative approaches to loss prevention, provision of benefits, and rules for coverage or determination of compensability have been initiated. Many examples of such recent changes in individual states were identified in the previous two sections. Although it is often difficult to generalize from natural experiments, the findings from such investigations can prove extremely useful in providing timely (and relatively inexpensive) evidence on the potential outcomes of more widespread system reforms.

Appendix A

ESSENTIAL RECOMMENDATIONS OF THE NATIONAL COMMISSION ON STATE WORKMEN'S COMPENSATION LAWS¹

R2.1 That (a) coverage by workmen's compensation laws be compulsory for private employments generally and that (b) no waivers be permitted.

R2.2 That employers not be exempted from workmen's compensation coverage because of the number of their employees.

R2.4 That a two-stage approach to the coverage of farm workers be instituted: First, as of July 1, 1973, that each agriculture employer with an annual total payroll exceeding \$1,000 be required to provide workmen's compensation coverage to all of his employees. Second, as of July 1, 1975, that farm workers be covered on the same basis as all other employees.

R2.5 That, as of July 1, 1975, household workers and all casual workers be covered under workmen's compensation at least to the extent they are covered by Social Security.

R2.6 That workmen's compensation coverage be mandatory for all government employees.

R2.7 That there be no exemptions for any class of employees, such as professional athletes or employees of charitable organizations.

R2.11 That an employee or his survivor be given the choice of filing a workmen's compensation claim in the State where the injury or death occurred, or where the employment was principally localized, or where the employee was hired.

R2.13 That all States provide full coverage for work-related diseases.

R3.7 That subject to the State's maximum weekly benefit, temporary total disability benefits be at least 66-2/3 percent of the worker's gross weekly wage.

¹Recommendations are taken from National Commission on State Workmen's Compensation Laws, *Report*, U.S. Government Printing Office, Washington, D.C., July 1972.

R3.8 That as of July 1, 1973, the maximum benefit for temporary total disability be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

R3.11 That the definition of permanent total disability used in most States be retained. However, in those few States which permit the payment of permanent total disability benefits to workers who retain substantial earning capacity, that the benefit proposals be applicable only to those cases which meet the test of permanent total disability used in most States.

R3.12 That subject to the State's maximum weekly benefit, permanent total disability benefits be at least 66-2/3 percent of the worker's gross weekly wage.

R3.15 That, as of July 1, 1973, the maximum weekly benefit for permanent total disability be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

R3.17 That total disability benefits be paid for the duration of the worker's disability, or for life, without any limitations as to dollar amount or time.

R3.21 That subject to the State's maximum weekly benefit, death benefits be at least 66-2/3 percent of the worker's gross weekly wage.

R3.23 That, as of July 1, 1973, the maximum weekly death benefit be at least 66-2/3 percent of the State's average weekly wage, and that as of July 1, 1975, the maximum be at least 100 percent of the State's average weekly wage.

R3.25 That (a) death benefits be paid to a widow or widower for life or until remarriage; that (b) in the event of remarriage, two years' benefits be paid in a lump sum to the widow or widower; and that (c) benefits for a dependent child be continued until the child reaches 18 (or beyond such age if actually dependent) or until age 25 if enrolled as a full-time student in any accredited educational institution.

R4.2 That there be no statutory limits of time or dollar amount for medical care or physical rehabilitation services for any work-related impairment.

R4.4 That the right to medical and physical rehabilitation benefits not terminate by the mere passage of time.

Table A.1 shows the extent of current compliance with the National Commission's 19 essential recommendations. Table A.2 shows pending state changes (effective after January 1, 1979) to accord with the Commission's recommendations.

Table A.1

STATE COMPLIANCE WITH RECOMMENDATIONS RELATING TO COVERAGE

State	Recommendation Number																						
	2.1(a)	2.1(b)	2.2	2.4	2.5	2.6	2.7	2.11	2.13	3.7	3.8	3.11	3.12	3.15	3.17	3.21	3.23	3.25(a)	3.25(b)	3.25(c)	3.25(d)	4.2	4.4
Total states meeting	49	34	37	14	1	31	24	25	52	48	26	51	47	24	36	32	20	17	12	19	7	52	46
Alabama	x	x					x	x	x	x	x	x	x	x	x	x	x					x	x
Alaska	x	x	x					x	x	x	x	x	x	x	x	x	x					x	x
Arizona	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x					x	x
Arkansas	x	x				x			x	x	x	x	x	x	x							x	x
California	x	x	x	x		x	x		x	x	x	x	x	x	x	x						x	x
Colorado	x	x	x	x		x		x	x	x	x	x	x	x	x	x						x	x
Connecticut	x	x	x	x					x	x	x	x	x	x	x	x						x	x
Delaware	x	x	x					x	x	x	x	x	x	x	x	x						x	x
District of Columbia	x	x	x			x	x		x	x	x	x	x	x	x							x	x
Florida	x	x				x	x		x	x	x	x	x	x	x	x						x	x
Georgia	x	x				x			x	x	x	x	x	x	x	x						x	x
Hawaii	x	x	x	x		x			x	x	x	x	x	x	x	x						x	x
Idaho	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Illinois	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Indiana	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Iowa	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Kansas	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Kentucky	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Louisiana	x	x	x	x		x			x	x	x	x	x	x	x	x						x	x
Maine	x	x	x			x			x	x	x	x	x	x	x	x						x	x
Maryland	x	x	x	x		x			x	x	x	x	x	x	x	x						x	x

Table A.2

PENDING CHANGES

State	Effective Date	Maximum Weekly Compensation for Total Disability and Death Will Equal:
Alaska	1/1/79	166-2/3 percent of State average weekly wage
	1/1/81	200 percent of State average weekly wage
Iowa	7/1/79	166-2/3 percent of State average weekly wage
	7/1/81	200 percent of State average weekly wage
Oklahoma ^a	1/1/80	\$110
	1/1/81	66-2/3 percent of State average weekly wage
South Dakota	7/1/79	100 percent of State average weekly wage

SOURCE: U.S. Department of Labor "Hearings on the National Workers' Compensation Standards Act of 1979," *Congressional Record*, S1464-S1465, February 9, 1979.

^aCompensation shown for Oklahoma pertains only to permanent total disability and death, not to temporary total disability.

Appendix B

ORGANIZATIONS THAT PROVIDE DATA ON WORK-RELATED INJURIES AND DISEASES AND WORKERS' COMPENSATION

Alliance of American Insurers
American Insurance Association
Center for Human Resource Research, Ohio State University
Institute for Social Research, Survey Research Center,
University of Michigan
National Bureau of Economic Research
National Safety Council
New York Times Information Service
Social Security Administration
U.S. Bureau of Labor Statistics
U.S. Department of Labor
Workers' Compensation Bureau (of each state)

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