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The Adequacy of Cash Benefits Prescribed by Workers' Compensation Statutes

by Terry Thomason and John F. Burton, Jr.

Workers' compensation programs provide cash benefits, medical care, and rehabilitation services to workers who experience work-related injuries and diseases.[1] Each state has a statute that prescribes the features of its workers' compensation program, including the scope of workers and employers who are covered, the types of injuries that are compensable, and the amounts of benefits that workers receive. The cash benefits provided by workers' compensation programs are particularly complex because benefit formulas differ between temporary and permanent disability, between total and partial disability, and between injuries that result in disability and injuries that result in death.

We examine the relative generosity of the cash benefits prescribed by state workers' compensation statutes for the period from 1972 to 1998. We rely on an actuarial program that is adapted from the procedure used by the National Council on Compensation Insurance (NCCI) to evaluate the effects of changes in state laws.[2] We also evaluate the adequacy of the cash benefits prescribed by the state programs by relying on previous efforts to provide benchmarks for adequacy.

STANDARDS FOR ADEQUACY

The Advisory Committee on Workmen's Compensation[3] of the Council of State Governments drafted a proposed *Workmen's Compensation and Rehabilitation Law*, generally referred to as the *Model Act*, which was published in the 1960s.[4] Arthur Larson, a Professor at the Duke University School of Law and a former Undersecretary of Labor in the Eisenhower administration, chaired the Committee. The other members included representatives from employers, insurance carriers, state and federal agencies, labor unions, physicians, and academics, all with an expertise in workers' compensation. The *Model Act* contained statutory language for all aspects of a workers' compensation program, including detailed specifications for cash benefits.

The Occupational Safety and Health Act of 1970 created the National Commission on State Workmen's Compensation Laws (National Commission) and directed the National Commission to "undertake a comprehensive study and evaluation of State workmen's compensation laws in order to determine if such laws provided an adequate, prompt, and equitable system of compensation." The National Commission was comprised of 18 members, of whom 15 were appointed by President Nixon to represent state agencies, insurance carriers, employers, labor, and others with expertise in workers' compensation.[5] The 1972 Report of the National Commission[6] included a unanimous judgment: "The inescapable conclusion is that State workmen's compensation laws in general are inadequate and inequitable."[7] In terms of cash benefits, the judgment was equally harsh: "Except in a few states, workers' compensation benefits are not adequate."[8]

Based on these conclusions and an analysis of the objectives of a modern workers' compensation program, the National Commission made 74 recommendations, which were designed to extend coverage, ensure sufficient medical and rehabilitative services for injured workers, encourage safety, provide an effective delivery system, and, importantly, improve cash benefit adequacy. Nineteen of these recommendations were designated as "essential elements of a modern workmen's compensation program," and the National Commission recommended that "compliance of the States with these essential recommendations be evaluated on July 1, 1975, and, if necessary, Congress with no further delay in the effective date should then guarantee compliance with these recommendations."[9]

The average state currently only complies with 12.89 of the 19 essential recommendations of the National Commission.[10] Despite this record, Congress has not enacted the Federal guarantees unanimously supported by the National Commission. However, one salutary effect of the National Commission Report is that a revision of the *Model Act* was published in 1974 to incorporate the 84 recommendations of the Commission.[11] Twenty-seven recommendations pertaining to cash benefits were used to prepare the *Model Act (Revised)*. When there was a conflict between the original *Model Act* and the National Commission's recommendations, the *Model Act* was revised to incorporate the National Commission's recommendations. Because the National Commission did not make spe-

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cific recommendations for permanent partial disability benefits, the provisions for the duration of this type of benefit in the original *Model Act* were incorporated into the *Model Act (Revised)*.[12]

PLAN FOR THE ARTICLE

The purpose of this article is to examine the generosity of cash benefits prescribed by workers' compensation statutes, how the generosity has changed over time, and how generosity varies across jurisdictions. This is not an trivial task because workers' compensation benefits are contingent on a variety of factors, including the claimant's pre-injury wage, the severity of the claimant's injury, and the claimant's marital and family situation, among other things. The complexity of the benefit formulae used by the various state workers' compensation programs precludes an accurate assessment of benefit generosity using one or two parameters.

We estimate the average statutory benefit for a disabled workers' compensation claimant in each state for the years 1972 through 1998 by applying the law in effect on January 1 of each year to an identical distribution of workers' compensation claimants. This claimant distribution, which is a national distribution obtained from the NCCI, includes most of the relevant variables used by statutory benefit formulae.

The Appendix describes the methodology we used to construct the estimates of statutory generosity. In the next section, we present and discuss national estimates of expected statutory benefits for the period 1972 through 1998. These estimates are reported in both current and constant dollars for the entire period. We also report estimates disaggregated by state for 1998. In addition, these statutory benefit estimates are compared with those that would have been paid under the *Model Act (Revised)* published by the Council of State Governments. The parameters of the *Model Act (Revised)*, which are summarized in Appendix Table A1, serve as criteria against which the adequacy of statutory cash benefits may be judged.

ESTIMATES OF STATUTORY BENEFIT GENEROSITY

Data on expected cash benefits for workers' compensation claimants in the United States are presented in Figure 1. These are the benefits than an injured worker could expect to receive based on the workers' compensation statutory provisions applicable to the worker. These data as well as the other time-series data discussed in this article are also reported in Table 1. The observations are for the 50 states plus the District of Columbia for each of the years from 1972 to 1998. For each year, we report the weighted national average (mean) of expected statutory benefits, as well as the average plus and minus one standard deviation.[13] These data in Figure 1 are reported in current dollars; that is, they have not been adjusted to account for changes in the cost of living.

Figure 1
Expected Statutory Benefits, 1972-98

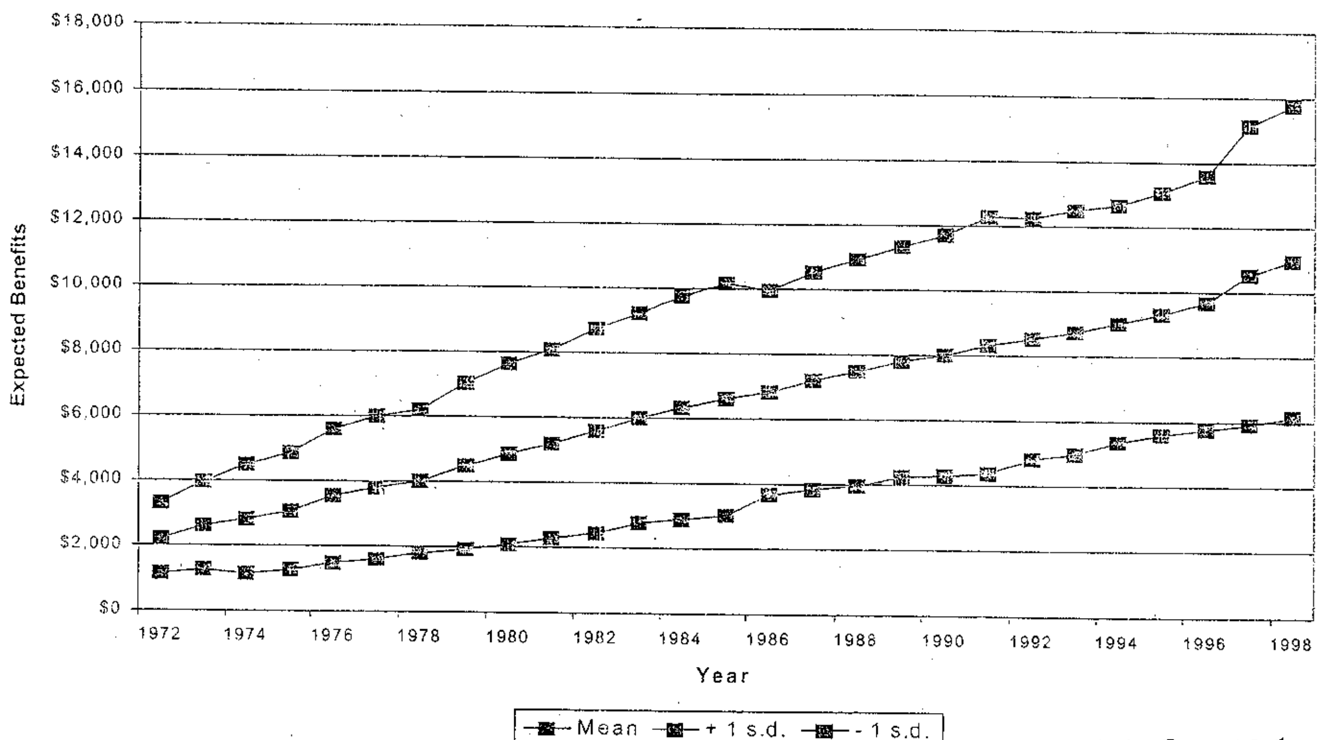

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Table 1
Summary Statistics, Real and Nominal Expected Benefits and Ratio of Model Act Benefits to Benefits under Current Law, 1972-98

Year	Nominal Expected Benefits					Real Expected Benefits (1998 $)		Ratio of Benefits under Current Law to Benefits under Model Act	
	Mean	Standard Deviation	Median	75th Percentile	25th Percentile	Mean	Standard Deviation	Mean	Standard Deviation
1972	$2,218	$1,073	$1,952	$1,430	$2,552	$8,710	$4,216	36.7%	17.1%
1973	$2,603	$1,356	$2,100	$1,488	$2,904	$9,623	$5,015	41.3%	20.9%
1974	$2,823	$1,665	$2,439	$1,678	$3,273	$9,401	$5,544	41.8%	27.0%
1975	$3,060	$1,805	$2,607	$1,997	$3,462	$9,336	$5,508	42.2%	27.4%
1976	$3,532	$2,074	$3,245	$2,198	$4,302	$10,191	$5,985	45.5%	28.5%
1977	$3,791	$2,207	$3,539	$2,389	$4,620	$10,270	$5,980	45.9%	29.0%
1978	$4,000	$2,198	$3,925	$2,650	$5,121	$10,072	$5,535	45.3%	27.8%
1979	$4,474	$2,544	$4,092	$2,856	$5,598	$10,117	$5,753	46.7%	29.3%
1980	$4,858	$2,788	$4,533	$3,265	$6,116	$9,679	$5,554	46.3%	29.2%
1981	$5,174	$2,895	$4,862	$3,543	$6,586	$9,345	$5,229	45.3%	28.1%
1982	$5,583	$3,145	$5,283	$3,922	$7,089	$9,498	$5,350	45.9%	28.6%
1983	$6,004	$3,216	$5,442	$4,206	$7,609	$9,896	$5,302	47.2%	28.0%
1984	$6,322	$3,425	$5,682	$4,530	$7,852	$9,998	$5,417	47.5%	28.2%
1985	$6,592	$3,581	$5,815	$4,748	$8,142	$10,058	$5,463	47.5%	28.2%
1986	$6,806	$3,147	$6,181	$5,075	$8,283	$10,185	$4,709	46.8%	21.5%
1987	$7,176	$3,349	$6,385	$5,237	$8,853	$10,361	$4,836	47.3%	21.4%
1988	$7,454	$3,481	$6,603	$5,470	$9,021	$10,335	$4,826	46.6%	19.8%
1989	$7,807	$3,559	$6,932	$5,740	$9,108	$10,335	$4,712	47.5%	19.6%
1990	$7,999	$3,711	$7,330	$6,024	$9,517	$10,055	$4,665	46.6%	19.4%
1991	$8,311	$3,957	$7,546	$6,261	$9,846	$10,025	$4,773	46.5%	19.7%
1992	$8,544	$3,717	$7,829	$6,471	$10,478	$10,005	$4,353	45.4%	17.7%
1993	$8,729	$3,752	$8,183	$6,507	$10,453	$9,931	$4,269	45.6%	17.2%
1994	$9,003	$3,661	$8,558	$6,964	$11,197	$9,979	$4,058	46.3%	16.9%
1995	$9,326	$3,730	$8,889	$7,269	$11,659	$10,053	$4,020	46.2%	16.6%
1996	$9,659	$3,916	$8,947	$7,342	$12,018	$10,108	$4,098	45.8%	16.5%
1997	$10,530	$4,624	$9,643	$7,935	$12,928	$10,773	$4,730	47.1%	18.8%
1998	$10,963	$4,806	$10,358	$8,091	$13,575	$10,963	$4,806	46.7%	18.8%

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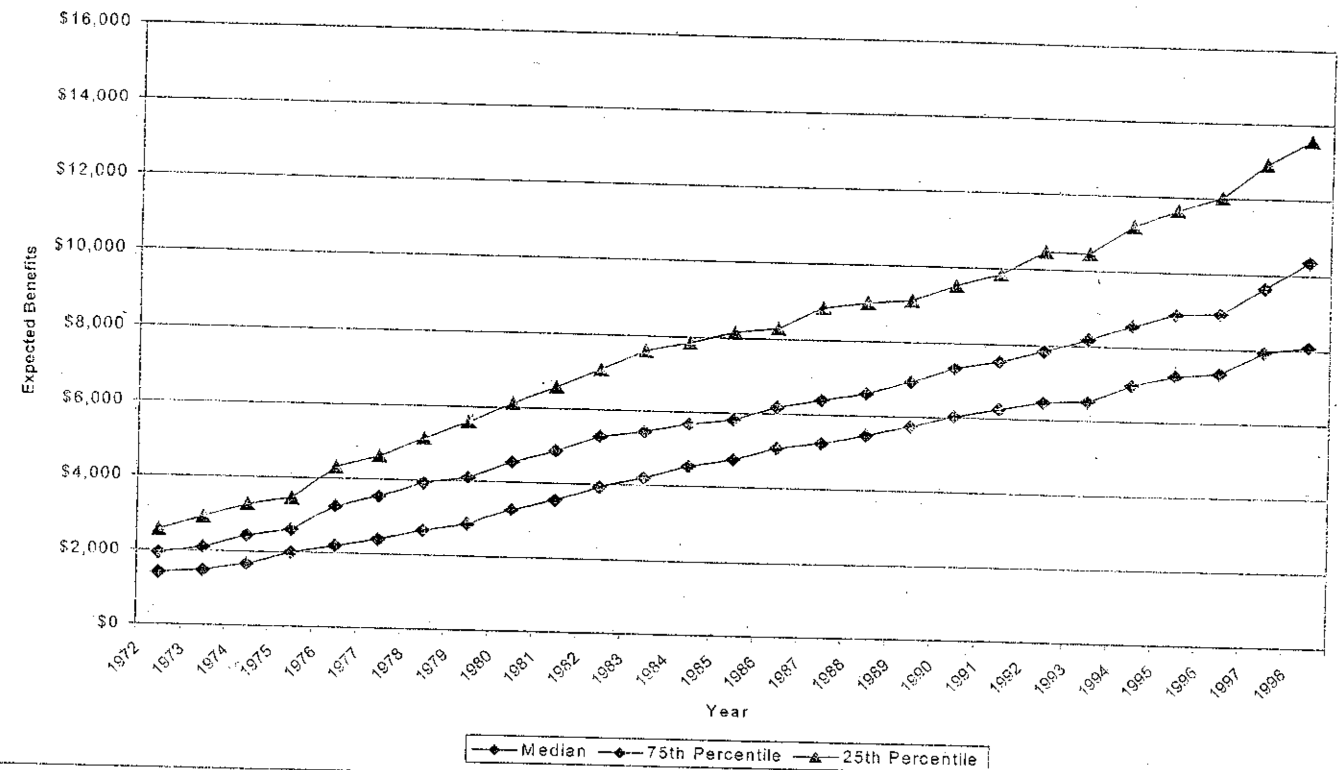
Figure 2
Expected Benefits, Median, 25th and 75th Percentiles, 1972-98



The data in this figure show that in 1972, the average workers' compensation claimant could expect to receive a little over $2,200 in benefits as the result of his or her work injury. By 1998, average expected workers' compensation benefits had risen to around $11,000, a five-fold increase.

The distance between the top and bottom lines depicted in Figure 1 is a measure of the variation among states with respect to expected workers' compensation benefits.[14] These data suggest that state workers' compensation programs became more heterogeneous over time. The variance in expected benefits increased from 1972 through 1985, then declined markedly in 1986 before increasing again throughout the remainder of the period.

Figure 2 reports the median expected cash benefits among the 51 jurisdictions included in our study as well as benefits paid at the 25th and 75th percentiles. A comparison of the median in this figure with the mean in Figure 1 suggests that the distribution of expected cash benefits across states is skewed right. That is, a few very high benefit states in the right hand tail of the distribution are pulling the national average (mean) up relative to the median. This is also reflected in the distance of the 25th and 75th percentiles from the median. As can be seen, throughout the period the median is much closer to the 25th than to the 75th percentile, but particularly toward the end of the study period.

Real expected benefit data – in 1998 constant dollars – for the 50 state workers' compensation programs plus the District of Columbia are reported in Figure 3. As expected, the slopes of the lines in these figures are much flatter than the current dollar benefit data depicted in Figures 1 and 2. The weighted average of real benefit for the United States was about $8,700 in 1972, rose to about $10,300 in 1976 – around a 15 percent constant dollar increase – then declined slightly in the early 1980s, before increasing once again during the rest of the 1980s. Real benefits declined again in the early and mid-1990s, before increasing somewhat in the last two years to reach almost $11,000 in 1998.

The immediate post-1972 increase in real benefits is probably attributable to the effect of the *Report of the National Commission on State Workmen's Compensation Laws*, which recommended a number of changes to state laws liberalizing benefits and which recommended federal standards for state workers' compensation programs if the states failed to improve their laws.

There is little indication in Figure 3 and Table 1 that interstate variations in real benefits increased over the study period. The gap between one standard deviation below and one standard deviation above the mean increased over the first few years (1972 to 1976), but declined between 1976 and 1985. It declined markedly in 1986 and again in 1991. Between 1991 and 1996, interstate variation continued to decline, although at a slower

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Figure 3
Real Expected Benefits, 1998 Dollars, 1972-98

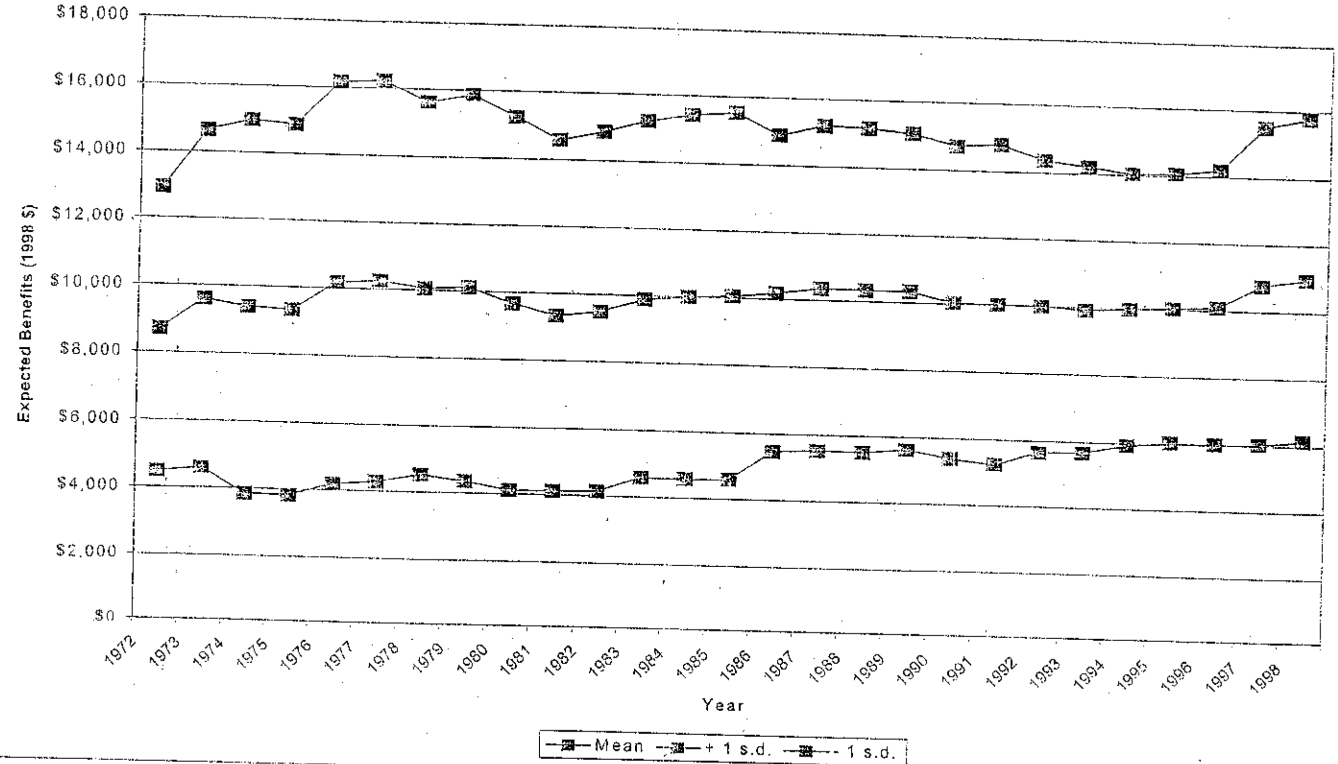
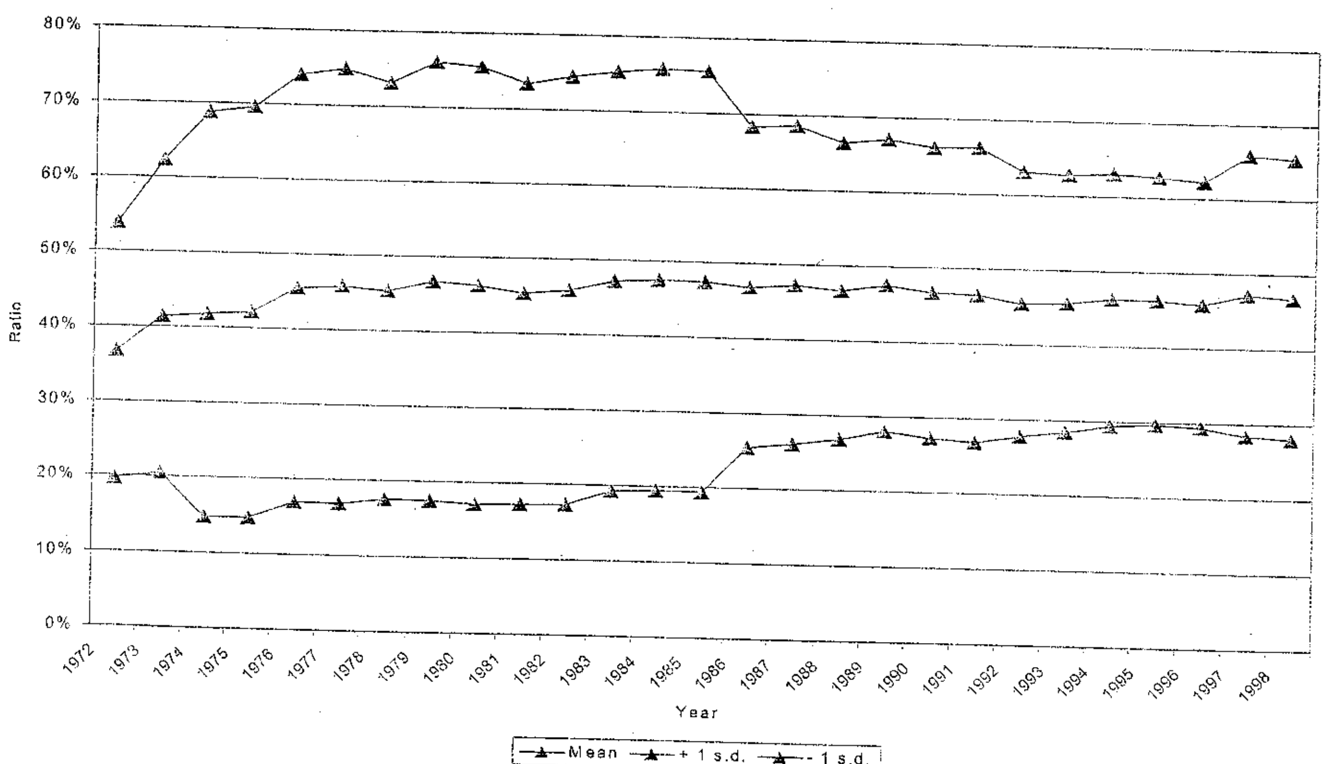


Figure 4
Ratio of Statutory to Model Act Benefits, 1972-98



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pace. In the last two years, variation once again increased.

Data comparing expected benefits under the actual statutory parameters with the benefits prescribed by the provisions of the *Model Act (Revised)* are presented in Figure 4. The weighted average (mean) benefit provided by state workers' compensation statutes improved slightly in terms of adequacy during the first five years of the period, rising from slightly less than 37 percent of the benefits prescribed by the *Model Act (Revised)* in 1972 to about 46 percent in 1976. The ratio of actual statutory benefits to *Model Act (Revised)* benefits was relatively unchanged over the remainder of the period, although it declined slightly from 1992 through 1996 before increasing somewhat over the last two years.

Once again, these data indicate that interstate benefit variation increased from 1972 through 1979, and then remained unchanged until 1986 when it fell markedly. Thereafter, the standard deviation of the benefit ratio declined steadily until 1997, when it once again increased. Assuming that the *Model Act (Revised)* represents a reasonable criterion by which to judge the income-replacement adequacy of workers' compensation benefits, the data in Figure 4 suggest that statutory benefit levels have been and remain woefully inadequate in the overwhelming majority of states. Over one-half of the states prescribe benefits that are less than half the benefits that are prescribed by the Model Act.

Finally, Figures 5 and 6 and Table 2 present benefit measures for individual states for 1998.[15] These data indicate there is substantial interstate variation in the generosity of cash benefits. Figure 5 shows that expected statutory benefits for a workers' compensation claimant in 1998 ranged from $30,907 for injured workers in the District of Columbia to $4,395 for identical injured workers in Louisiana. Figure 6 reports the

Figure 5
Expected Benefits under Current Law, By State, 1998

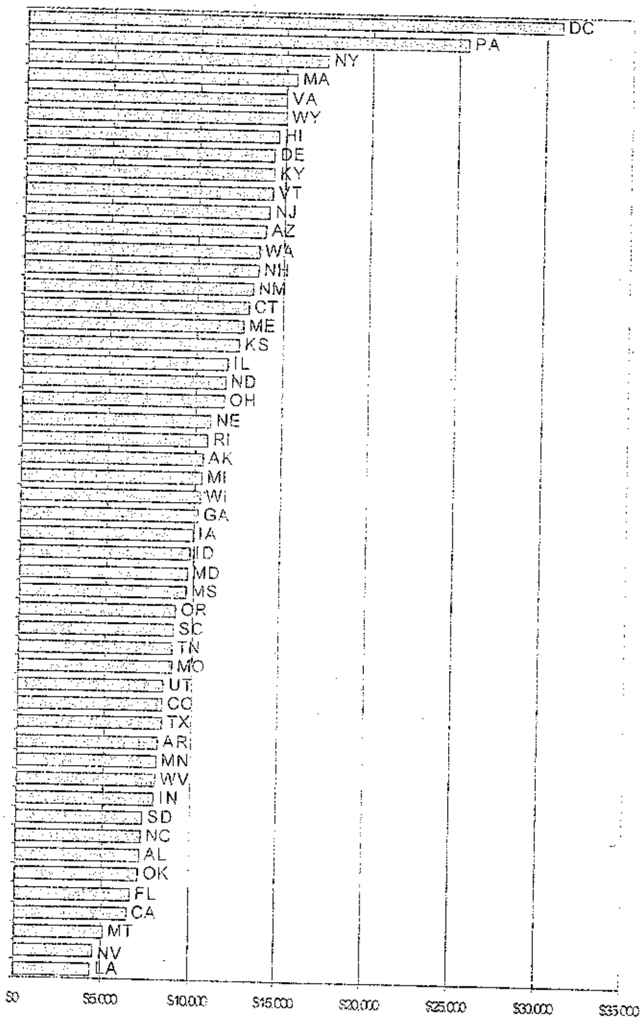

Figure 6
Ratio of Benefits under Current Law to Model Act Benefits, By State, 1998

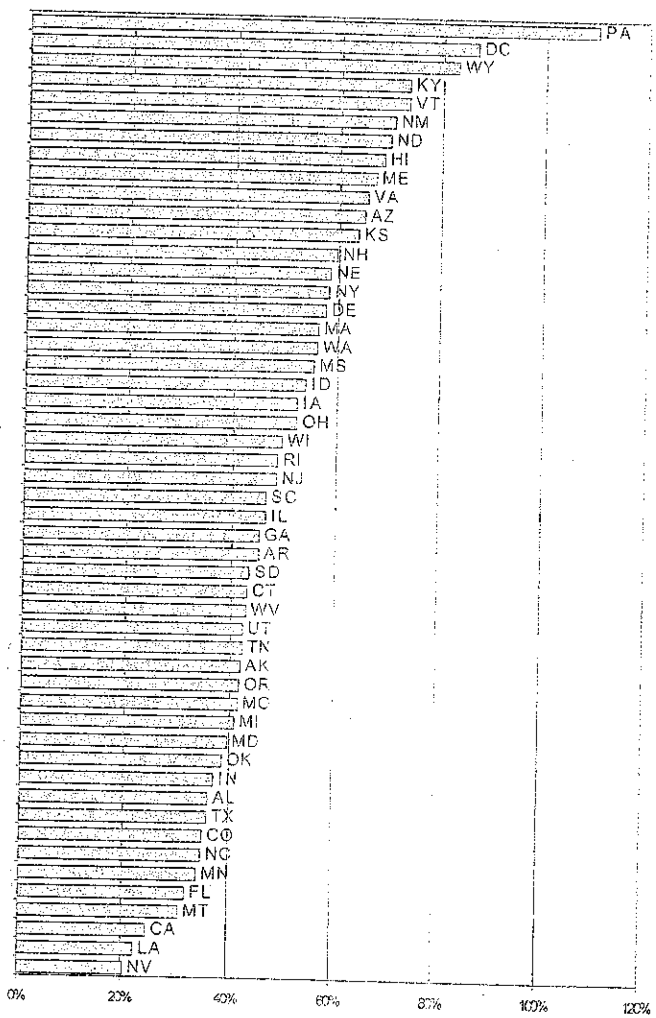

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Table 2
Expected Benefits and Ratio of Statutory Benefits to Model Act Benefits, 1998, By State

State	Expected Benefits	Ratio of Benefits under Current Law to Benefits under Model Act
Alabama	$7,142	36.1%
Alaska	$10,479	42.1%
Arizona	$13,940	64.9%
Arkansas	$8,091	45.3%
California	$6,421	24.7%
Colorado	$8,319	35.2%
Connecticut	$12,995	43.2%
Delaware	$14,353	57.6%
District of Columbia	$30,907	86.7%
Florida	$6,608	32.0%
Georgia	$10,242	45.3%
Hawaii	$14,603	68.7%
Idaho	$9,790	53.8%
Illinois	$11,871	46.5%
Indiana	$7,902	37.0%
Iowa	$9,977	52.4%
Kansas	$12,515	63.7%
Kentucky	$14,347	73.5%
Louisiana	$4,395	22.3%
Maine	$12,725	67.2%
Maryland	$9,675	39.6%
Massachusetts	$15,603	56.2%
Michigan	$10,436	41.1%
Minnesota	$8,012	34.1%
Mississippi	$9,636	55.4%
Missouri	$8,830	41.7%
Montana	$5,085	30.7%
Nebraska	$10,907	58.4%
Nevada	$4,501	20.3%
New Hampshire	$13,522	59.6%
New Jersey	$14,140	48.6%
New Mexico	$13,256	70.6%
New York	$17,413	58.2%
North Carolina	$7,191	34.9%
North Dakota	$11,716	69.8%
Ohio	$11,656	52.3%
Oklahoma	$7,106	38.7%
Oregon	$9,042	41.8%
Pennsylvania	$25,513	110.2%
Rhode Island	$10,749	48.7%
South Carolina	$8,930	46.7%
South Dakota	$7,254	43.7%
Tennessee	$8,846	42.5%
Texas	$8,303	35.9%
Utah	$8,355	42.5%
Vermont	$14,295	73.4%
Virginia	$15,028	65.4%
Washington	$13,575	56.1%
West Virginia	$7,963	43.0%
Wisconsin	$10,358	49.6%
Wyoming	$14,989	83.0%

ratio of actual to *Model Act (Revised)* benefits for individual states. Using this measure, workers' compensation benefits are most generous in Pennsylvania, where the statutory benefits prescribed by the Pennsylvania workers' compensation program were 110 percent of the benefits prescribed by the *Model Act (Revised)*. On the opposite end of the spectrum, statutory cash benefits for claimants in Nevada were a little over 20 percent of the benefits that would have been prescribed if the state had adopted the *Model Act (Revised)*. Once again, the data in Figure 6 indicate that in most states benefits are inadequate if the *Model Act (Revised)* is used as an adequacy criterion.

CONCLUSIONS

Our results provide strong evidence that cash benefits prescribed by state workers' compensation statutes have barely improved since the submission of the *National Commission Report*. Our statutory benefit index has a number of advantages over other measures of benefit generosity, namely the average amount of benefits actually paid by workers' compensation programs, either per claim or per injured worker. First, actual benefit measures are not easily benchmarked using a standard like the *Model Act (Revised)*. Second, there is substantial variation among state workers' compensation programs with respect to the kind and quality of data they collect on actual benefit payments, limiting interstate comparability. Finally, actual benefits paid measures do not control for variation in the industrial, occupational, and demographic composition of employment, either across jurisdictions or over time, and this variation could significantly bias actual benefit payment measures. Simply put, a state with a high proportion of employment in relatively risk occupations would have higher actual benefit payments than a state with a lower proportion of high-risk occupations, even if the benefit formulae in effect in the two states were identical.

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There are, however, some limitations to our data. Differences in the administration of workers' compensation programs can result in substantial differences between benefits expected on the basis of an actuarial assessment of state statutes and the benefits actually paid to injured workers. Actual benefits will be higher in states that administer the law in a way more favorable to claimants, while the opposite will be true for states with less liberal administration.

Overall, our data indicate that, while cash benefits prescribed by state workers' compensation programs improved somewhat in the first few years following the National Commission's report, most states' statutory benefits continue to be woefully inadequate when judged against the standards promulgated in the *Model Act (Revised)*. Only Pennsylvania prescribes benefits that meet or exceed those that would be required under this standard of adequacy. In some states, the workers' compensation statutes provide injured workers benefits that are only 20 percent of those required by the *Model Act (Revised)*. On average, state workers' compensation statutes prescribe cash benefits that are only half those that would be provided if states adopted the provisions of the *Model Act (Revised)*.

ENDNOTES

1. We use "injuries" to include injuries and diseases for the balance of this article.

2. The National Council on Compensation Insurance (NCCI) provides ratemaking and statistical services to insurers, local ratemaking organizations, and other stakeholders in about 40 jurisdictions (states plus the District of Columbia).

3. Workers' compensation programs were generally referred to as workmen's compensation programs until the late 1970s.

4. The *Model Act* was published in the 1963 and 1965 volumes of the *Program of Suggested State Legislation*, and was subsequently reprinted as *Workmen's Compensation and Rehabilitation Law With Section by Section Commentary* (Lexington, KY: Council of State Governments, 1973).

5. The three members of the National Commission who were *ex officio* members were the Secretaries of Labor, of Commerce, and of Health, Education, and Welfare.

6. National Commission on State Workmen's Compensation Laws, *The Report of the National Commission on State Workmen's Compensation Laws* (Washington, DC: Government Printing Office), 1973, hereafter the *National Commission Report*. The *National Commission Report* can be downloaded from www.workerscompresources.com.

7. *National Commission Report*, p. 119.

8. *National Commission Report*, p. 53.

9. *National Commission Report*, p. 26.

10. Glenn A. Whittington, Office of Workers' Compensation Programs, U.S. Department of Labor Employment Standards Administration, *State Workers' Compensation Laws in Effect on January 1, 2001 Compared with the 19 Essential Recommendations of the National Commission on State Workmen's Compensation Laws* (Washington, DC: U.S. Department of Labor), 2001.

11. *Workers' Compensation and Rehabilitation Law (Revised)* (Lexington, KY: Council of State Governments, 1974), hereafter *Model Act (Revised)*.

12. The maximum weekly benefit of 200 percent of the state's average weekly wage recommended by the National Commission for other types of cash benefits was used for PPD benefits.

13. State data on annual employment covered by the unemployment insurance program are used as weights.

14. The variation among states in expected workers' compensation benefits is measured by the standard deviation.

15. State specific data on real expected benefits paid to workers with at least one day of disability, for the period 1975 to 1995 may be found in Terry Thomason, Timothy P. Schmidle, and John F. Burton, Jr., *Workers' Compensation: Benefits, Costs, and Safety under Alternative Insurance Arrangements* (Kalamazoo, MI: The Upjohn Institute for Employment Research), 2001, Appendix D, pp. 402-5.

16. Each state workers' compensation statute provides a nominal replacement rate for each type of cash benefit. A typical nominal replacement rate is 66 2/3 percent of preinjury gross wages. However, a worker's actual replacement rate can be less than the nominal replacement rate if the worker is a high-wage worker whose benefits are limited by the program's maximum weekly benefit. Conversely, a worker's actual replacement rate can be higher than the nominal replacement rate if the worker is a low-wage worker whose benefits are increased by the program's minimum weekly benefit. We consider the effects of the maximum and minimum weekly benefits on the nominal replacement rate in our calculations of the average weekly benefit received by injured workers.

17. Our methodology is explicated in Terry Thomason, Timothy P. Schmidle, and John F. Burton, Jr., *Workers' Compensation: Benefits, Costs, and Safety under Alternative Insurance Arrangements* (Kalamazoo, MI: The Upjohn Institute for Employment Research), 2001, Appendix D, pp. 393-407.

18. The distribution of dependency status is based on fatal cases.

19. Social security benefits are based on the claimant's wage history over a lengthy period rather than the pre-injury weekly wage. Since we lacked information on the earnings history of workers' compensation claimants and how that history relates to our wage distribution, we assumed that the pre-injury wage accurately reflects current annual earnings, which, in turn, accurately reflects the claimant's wage history.

20. The workers will qualify for medical benefits and may also qualify for PPD benefits if their injury results in a permanent impairment even if they do not qualify for TTD benefits.

21. We used the same wage for each state that was used to calculate the expected temporary total disability benefits based on actual provisions in the state workers' compensation statute (shown in Figure A.1) to calculate the expected temporary total disability benefits in the state if the Model Act provisions were in effect in the state.

22. Of course, not all claimants will experience all four periods, depending on the age and family status.

23. A few states (e.g., New Mexico, California, and Montana) use formulae that incorporate factors such as the level of education, occupation, and age to determine lost earning capacity for a given functional impairment. In those states, we use CPS employment data and claims data from the New York State Workers' Compensation Board to determine the average lost earnings capacity for a given degree of functional impairment, which is then linked with the NCCI PPD distribution.

24. Monroe Berkowitz and John F. Burton, Jr., *Permanent Disability Benefits in Workers' Compensation* (Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research), 1987.

25. In many states benefit payments to dependent children may continue while the child is enrolled in an educational institution after the age of majority until a somewhat later age, typically age 21 or 22.

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APPENDIX

Methodology Used to Calculate Statutory Benefit Generosity

Assessing the relative generosity of the cash benefits paid by the various workers' compensation programs is difficult, in part because benefits are based on a number of parameters that vary substantially across jurisdictions. Each beneficiary typically receives a periodic payment (usually a weekly benefit), which depends on the injured worker's pre-injury wage, the severity of the claimant's disability, and the statute applicable to the worker. The duration of these benefit payments depends on the severity of the claimant's disability, although there are limits on benefit duration that vary both across states and, within a state, among injury types.

Thus, it is difficult to accurately assess the generosity of statutory benefit formulae across states or over time using only a few parameters, such as the nominal replacement rate (e.g., benefits are 66 2/3 percent of the worker's preinjury wage) or the weekly benefit maximum.[16] Instead, an accurate evaluation of generosity requires the evaluation of the cash benefits paid to a representative distribution of workers' compensation claims that varies along most of the dimensions used to determine benefits in the various state programs. We apply each state's statutory formulae to determine the benefits paid to each claim in that distribution, and we then calculate the average benefit paid to all claims in the distribution. In this article, we use this type of actuarial procedure to assess cash benefits paid by state workers' compensation programs for each year in the period from 1972 to 1998.

Workers' compensation statutes typically use a four-part classification scheme to categorize cash benefits: temporary total disability (TTD); permanent total disability (PTD); permanent partial disability (PPD); and fatalities (Fatals). For each type, total expected benefits are equal to the product of: (1) the average weekly benefit and (2) the duration of benefit payments in weeks. We calculate these two components separately using appropriate wage or duration distributions; we then take the product to obtain the total expected benefit amount for each benefit type. These separate benefit type estimates were then combined, using a national distribution of claims by type, to produce an overall expected benefit estimate for all disabling injury and illness claims. In the remainder of the Appendix, we describe the methods used to calculate each component of the overall estimate.[17]

Weekly Benefits

Similar methods were used to calculate weekly benefits for all four types. The basic procedure was to first construct a hypothetical wage distribution for each state, by centering a national wage distribution on the average weekly wage paid to workers covered by unemployment insurance in the state. We then calculate benefits paid to each worker in this distribution using the nominal replacement rate and the weekly benefit minimums and maximums prescribed by the state statute in effect on January 1 of each year in our study. An average weekly benefit for each state and year was then obtained by averaging across all workers in the distribution.

In some jurisdictions, it was necessary to modify this basic amount for one of at least four reasons. First, in some states weekly benefits depend on the number of the persons dependent on the claimant at the time of injury. In those instances, a distribution of claims by the injured worker's family status[18] – which is described in more detail below – was combined with the wage distribution, benefits were calculated for each claim in the combined distribution, and an average was taken for the entire claim distribution.

Second, in most states the nominal replacement rate is a percentage of the worker's preinjury gross weekly wage. However, in some states the nominal replacement rate is a percentage of spendable earnings (or after-tax income). In those cases, the before-tax wage distribution was converted to an after-tax wage distribution by deducting the estimated federal and state income taxes as well as FICA. Taxes were calculated on the basis of the claimant's presumed tax status given the number of dependents assumed by the combined wage-family status distribution. Once again benefits were calculated for each claim in the distribution and an average was taken.

Third, in some states weekly benefit payments are reduced by the payment of other benefits, most notably social security old age and survivors (OAS) and social security disability (SSDI) benefits. This amount, otherwise known as an offset, was calculated for each claim in the combined wage-family status distribution to determine the social security monthly benefit due the claimant, which was converted to a weekly amount. We assumed that SSDI only applied to PTD claims, that OAS benefits only applied to PTD and fatal claims, and that other offsets (such as unemployment insurance) were not applied to any workers' compensation benefits.[19]

Finally, in some states the weekly benefit is indexed to changes in the cost of living or the state's average weekly wage. In those states, we have inflated the duration of PTD, PPD, or fatal claims as appropriate to account for inflation. If benefits were indexed to the CPI, benefits were increased by four percent annually. If benefits were tied to the state's average weekly wage, we assumed a six percent inflation rate for benefits.

Temporary Total Disability Benefits

Duration. Statutory provisions may limit the duration of TTD benefit duration in three ways. First, in all states, claimants do not receive payment for the first few days of disabil-

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ity. This form of a deductible, known as a waiting period, is three to seven days (depending on the state). Claimants with disabilities that are less than the waiting period receive no TTD benefits.[20] Second, if the disability continues for a longer period – known as the retroactive period, which is 10 days to two weeks in most states – the claimant will be retroactively compensated for disability during the waiting period. Third, a handful of states limit the number of weeks the claimant and/or the dollar amount of TTD benefits the claimant may collect.

A national distribution of TTD claim durations, provided by the NCCI, was used to calculate average TTD benefit duration for each state and year after applying the statutory parameters with respect to the waiting and retrospective periods as well as any limits on TTD duration or benefits.

Temporary Total Disability Benefits in 1998. For each state in each year between 1972 and 1998, average duration for temporary total disability benefits was multiplied by the average weekly benefit to yield the total benefits paid to TTD claims. The expected temporary total disability benefits by state for 1998 are shown in Figure A1. The averages ranged from $2,173 per worker in the District of Columbia to $569 per worker in Oklahoma.

Table A1
Model Act Provisions

- **Temporary Total Disability**
  - *Weekly Benefit*
    - Maximum = 200 percent of state average weekly wage (SAWW) lagged three years
    - Minimum = 20 percent of SAWW lagged three years
    - Nominal replacement rate = 66 2/3 percent
  - *Duration*
    - Waiting period = 3 days
    - Retroactive period = 14 days
    - No other limit on duration

- **Permanent Total Disability**
  - *Weekly Benefit*
    - Same as TTD
    - Indexed to change in SAWW
  - *Duration*
    - No limit

- **Permanent Partial Disability -- Unscheduled**
  - *Weekly Benefit*
    - Maximums and minimums identical to TTD
    - Nominal replacement rate = 66 2/3 % of lost wage-earning capacity
  - *Duration*
    - No limit

- **Fatalities**
  - *Weekly Benefit*
    - Maximum = 200 percent of state average weekly wage (SAWW) lagged three years
    - Minimum = 50 percent of SAWW lagged three years
    - Nominal replacement rate = 66 2/3 percent
    - Offset by 100 percent of Social Security retirement benefits
    - Indexed to change in SAWW
  - *Duration*
    - Ceases upon remarriage
    - Upon remarriage, spouse receives two years of benefits

- **Permanent Partial Disability – Scheduled injuries**
  - *Weekly Benefit*
    - Minimum & maximum identical to TTD
    - Nominal replacement rate = 55 % of wage loss, except for scheduled injuries involving total loss or total loss of use of a major member, for which the nominal replacement rate is 66 2/3% of lost wage-earning capacity.
  - *Duration*
    - Determined by following schedule:

Injury Type	Weeks	Injury Type	Weeks
Arm, above elbow	360	4th finger, 1st phalange	8
Arm, below elbow	324	4th finger, 2nd phalange	16
Hand	324	Leg, above knee	240
Thumb, 1st phalange	65	Leg, below knee	168
Thumb, 2nd phalange	130	Foot	168
1st finger, 1st phalange	40.5	Great toe, 1st phalange	15
1st finger, 2nd phalange	81	Great toe, 2nd phalange	30
2nd finger, 1st phalange	32.5	Lesser toe, 2nd phalange	12
2nd finger, 2nd phalange	65	One ear	35.28
3rd finger, 1st phalange	16	Two ears	208
3rd finger, 2nd phalange	32	Eye, enucleation	150
		Eye, loss of vision	150

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Figure A1
TTD Benefits, By State, 1998

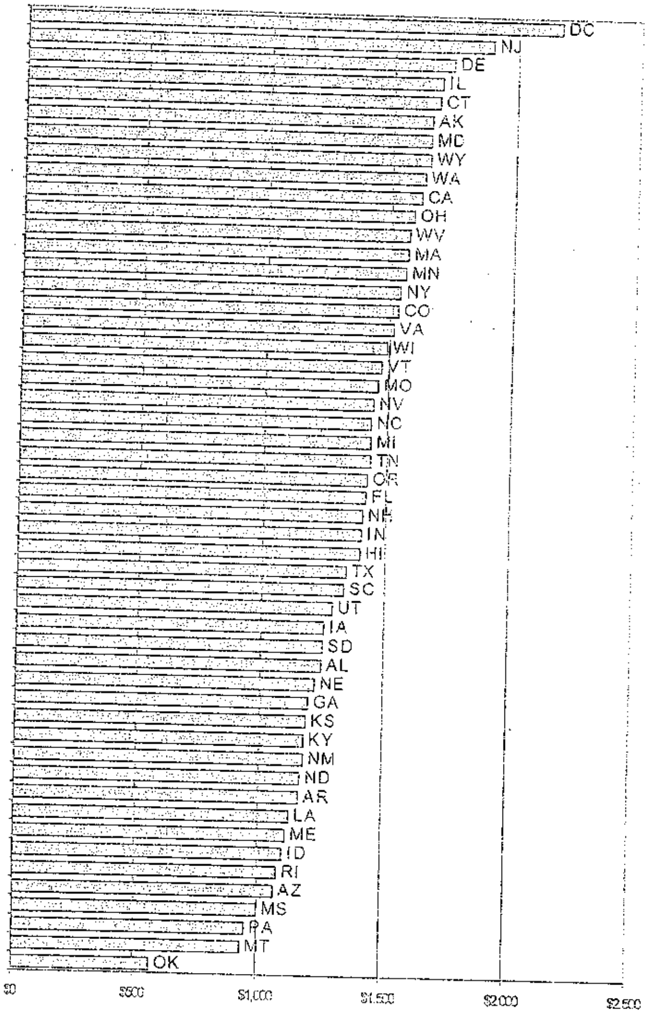
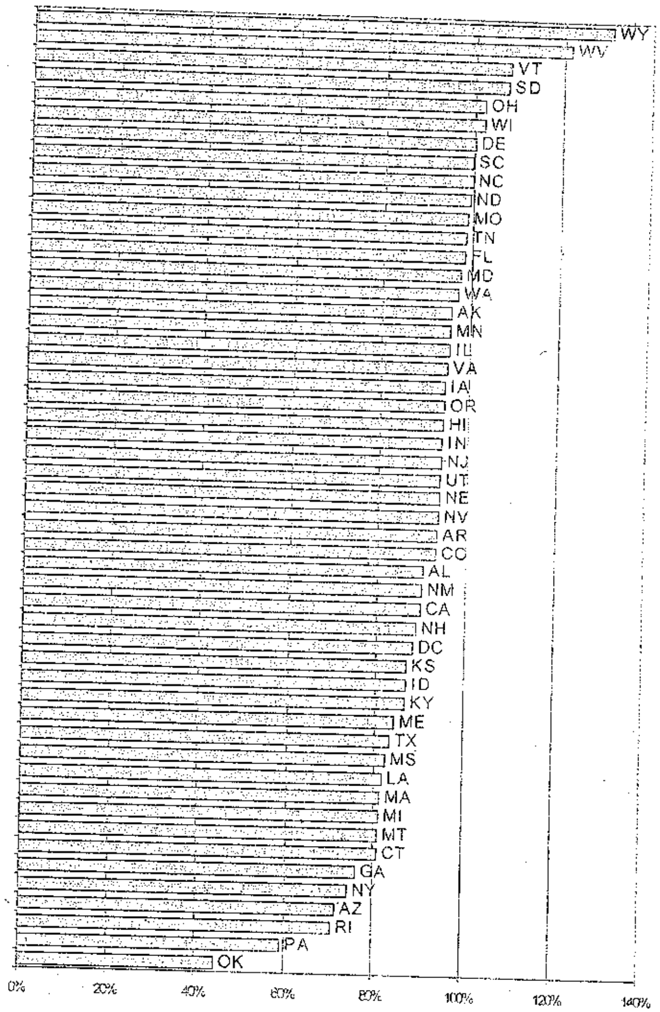


Figure A2
TTD Benefits, Ratio to Model Act,
By State, 1998



As a basis for evaluating the adequacy of the temporary total disability benefits prescribed by state workers' compensation statutes, we also calculated the benefits that would have been paid by each jurisdiction if it had adopted the provisions of the *Model Act (Revised)*, which are summarized in Table A1.[21] As we previously discussed, the *Model Act (Revised)* parameters offer a widely accepted standard by which to judge the adequacy of cash benefits provided by state workers' compensation statutes. Figure A2 shows the ratio of actual statutory temporary total benefits to *Model Act (Revised)* temporary total benefits for individual states. Using this measure, temporary total disability benefits are most generous in Wyoming, where the benefits prescribed by the statute were 130 percent of the benefits prescribed by the *Model Act (Revised)*. Temporary total disability benefits in 1998 were least generous in Oklahoma, where the benefits prescribed by the statute were less than 45 percent of the benefits prescribed by the *Model Act (Revised)*.

Permanent Total Disability Benefits

Duration. Some jurisdictions limit the duration of PTD benefits and/or or the total amount of benefits paid. Unless such a limit was specifically mentioned in the statute, we assumed that PTD benefits were paid for life. In either case, we determined the duration of PTD benefits using an age distribution of PTD claims provided by the NCCI and a mortality table from the U.S. Census Bureau. The expected benefit duration, discounted at 3.5 percent and adjusted for mortality, was calculated for every claimant in the age distribution, which was then multiplied by the average weekly benefit to obtain expected total benefits.

Where the workers' compensation statute indicates that PTD benefits are offset by SSDI, the benefit period is divided into four periods: a six-month waiting period during which we assume the claimant receives no social security benefits; a period dur-

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ing which SSDI includes benefits for dependent children; a period, after the children are presumed to have reached majority, during which only SSDI is paid; and a period, beginning at age 62, when SSDI benefits are no longer paid.[22] Benefit duration is calculated for each of these periods, adjusted for mortality and discounted at 3.5 percent; each component is multiplied by the applicable weekly benefit for that period.

Where social security retirement benefits offset workers' compensation, benefit duration is broken into two sub-periods – before and after age 65 – and a separate duration of each sub-period, adjusted for mortality and discounted at 3.5 percent, is calculated and then multiplied by the appropriate weekly benefit (offset or not offset).

Permanent Total Disability Benefits in 1998. For each state in each year between 1972 and 1998, average duration for permanent total disability benefits was multiplied by the average weekly benefit to yield the total benefits paid to PTD claims. The expected permanent total disability benefits by state for 1998 are shown in Figure A3. The averages ranged from $867,459 per worker in Vermont to $71,102 per worker in Louisiana.

As a basis for evaluating the adequacy of the permanent total disability benefits, we also calculated the benefits that would have been paid by each jurisdiction if it had adopted the provisions of the *Model Act (Revised)*, which are summarized in Table A1. Figure A4 shows the ratio of actual statutory permanent total benefits to *Model Act (Revised)* permanent total benefits for individual states. Using this measure, permanent total disability benefits are most generous in Vermont, where the benefits prescribed by the statute were 71 percent of the benefits prescribed by the *Model Act (Revised)*. Permanent total disability benefits in 1998 were least generous in Louisiana, where the benefits prescribed by the statute were less than

Figure A3
PTD Benefits, by State, 1998

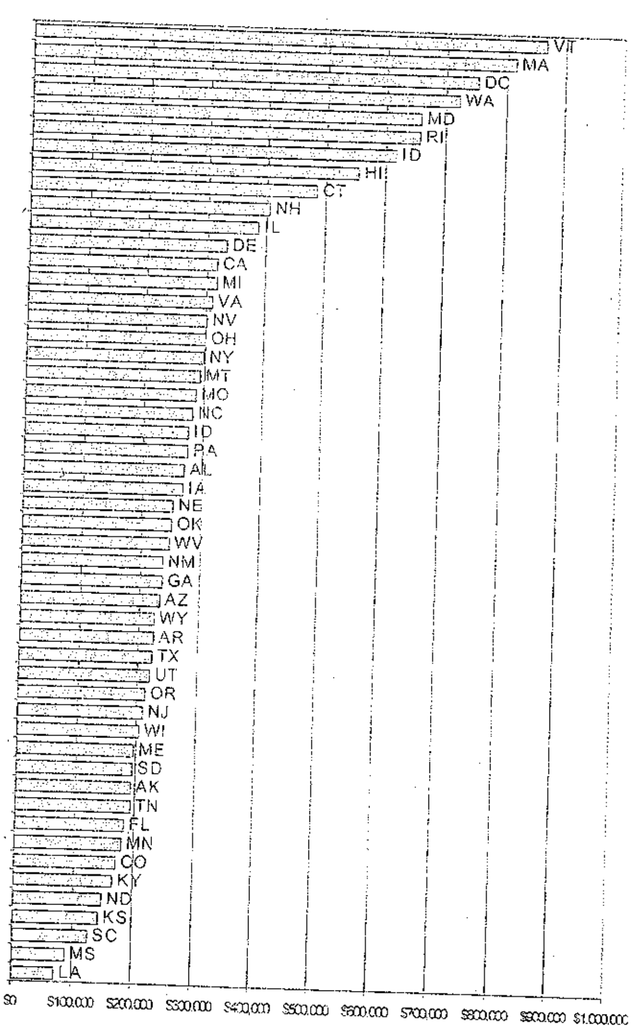
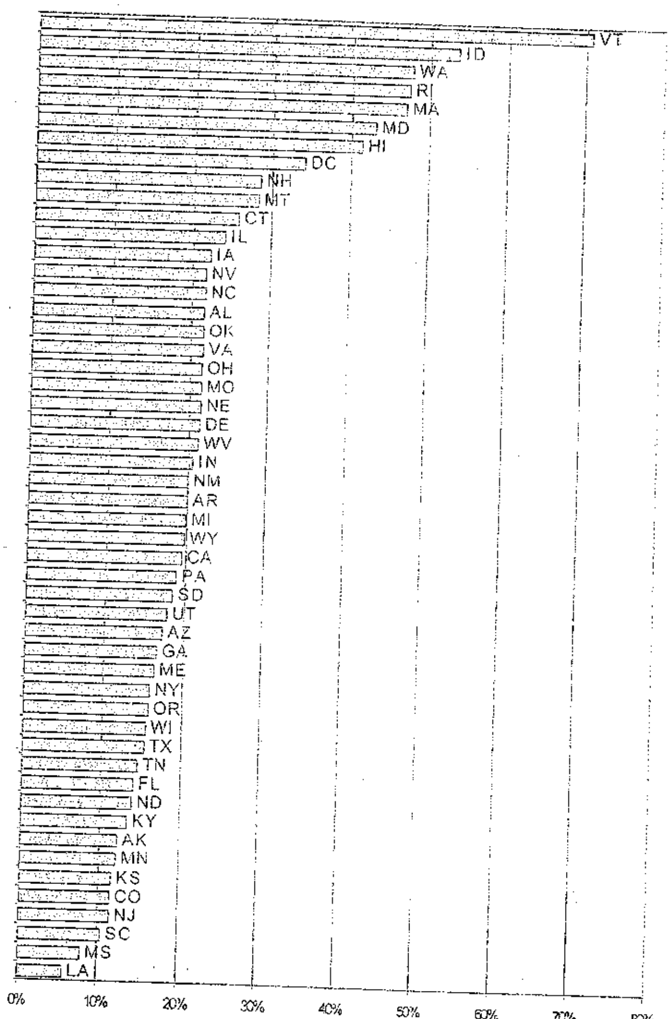


Figure A4
PTD Benefits, Ratio to Model Act, 1998



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six percent of the benefits prescribed by the *Model Act (Revised)*.

Permanent Partial Disability Benefits

Duration. Most state statutes recognize two different types of PPDs: scheduled and nonscheduled. Scheduled PPD benefits are paid to claimants who have suffered injuries to an extremity (such as a leg or hand), an eye, or an ear that are included in a list or schedule in the statute. The maximum durations of scheduled benefits for the physical loss or loss of use of these body members are specified by statute. For example, in New York, a claimant who loses the use of a leg is entitled to 288 weeks of benefits, whereas a claimant who loses an arm is entitled to 312 weeks of benefits. In the event of a partial loss of a scheduled body part, benefits are pro-rated based on the amount specified for the entire loss, so that a New York claimant who suffers a 50 percent loss of an arm is entitled to 156 weeks of benefits.

The basis for nonscheduled PPD benefits – that is, PPDs involving a body part that is not specifically mentioned in the statute – varies widely among states. In some states, nonscheduled benefits are based on the extent of permanent impairment or functional limitation – which is essentially a medical determination – while other jurisdictions evaluate the claimant's lost earning capacity, which considers the seriousness of the injury plus factors such as the worker's age, education, and work experience. In a handful of states, including New York, nonscheduled benefits are proportional to the extent of actual wage-loss, i.e., the difference between the claimant's pre and post-injury wages.

In some states, the duration of nonscheduled PPD duration is identical for all such injuries, and the weekly amount varies according to the severity of the injury, while in other states the duration varies according to the severity of the injury (i.e., the extent of lost wage-earning

Figure A5
PPD Benefits, By State, 1998

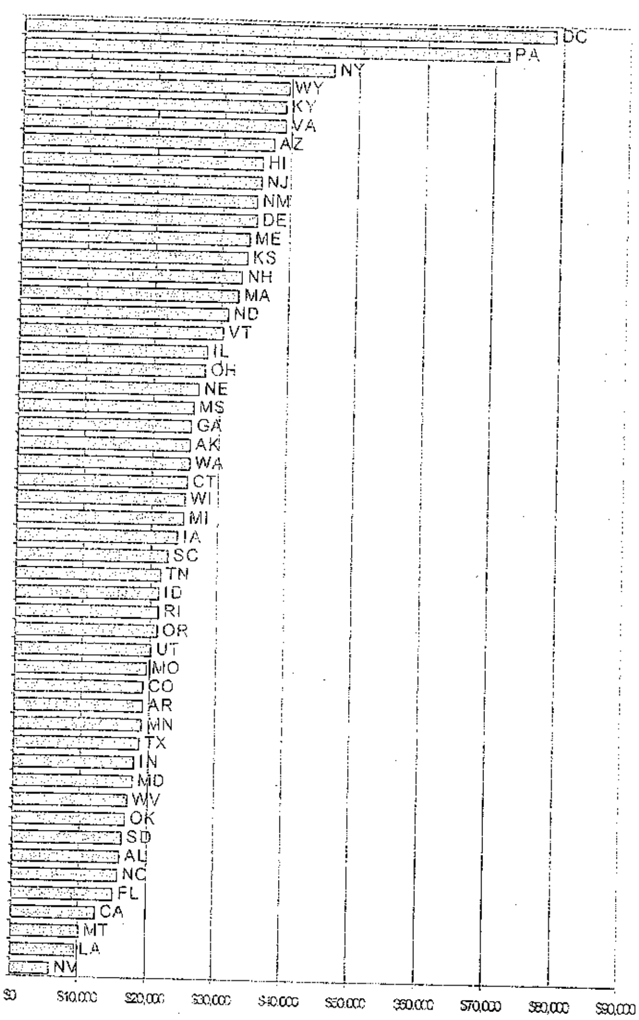
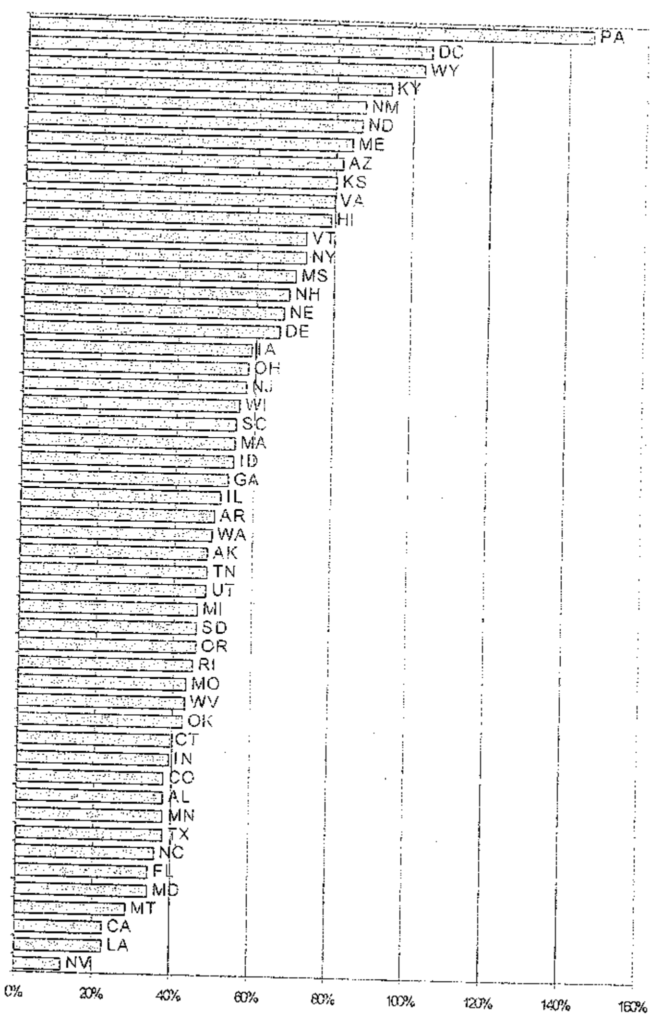


Figure A6
PPD Benefits, Ratio to Model Act, 1998



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capacity or functional impairment), while the weekly benefit does not vary by severity.

For permanent impairment or loss of earning capacity jurisdictions, we utilized a national distribution of PPD claims that varied by body part and the degree of impairment.[23] For wage-loss states, we used a wage-loss distribution derived from a study by Berkowitz and Burton[24] to determine the extent of wage-loss associated with a given degree of permanent impairment. This relationship between permanent impairment and wage-loss figure was the linked with the NCCI's distribution of PPD claims by severity to create a wage-loss distribution for PPD claimants.

Statutory information was combined with the resulting PPD distribution (wage loss, earning capacity, or permanent impairment) to determine average disability duration. Similar to PTD claims, PPD benefit durations were adjusted for mortality and a 3.5 percent discount rate.

Permanent Partial Disability Benefits in 1998. For each state in each year between 1972 and 1998, the average duration for permanent partial disability benefits was multiplied by the average weekly benefit to yield the total benefits paid to PPD claims. The expected permanent partial disability benefits by state for 1998 are shown in Figure A5. The averages ranged from $78,891 per worker in the District of Columbia to $5,765 per worker in Nevada.

As a basis for evaluating the adequacy of the permanent partial disability benefits, we also calculated the benefits that would have been paid by each jurisdiction if it had adopted the provisions of the *Model Act (Revised)*, which are summarized in Table 1A. Figure A6 shows the ratio of actual statutory permanent partial disability benefits to *Model Act (Revised)* permanent partial disability benefits for individual states. Using this measure, permanent partial disability benefits are most generous in Pennsylvania, where the benefits prescribed by the statute

Figure A7
Fatal Benefits, By State, 1998

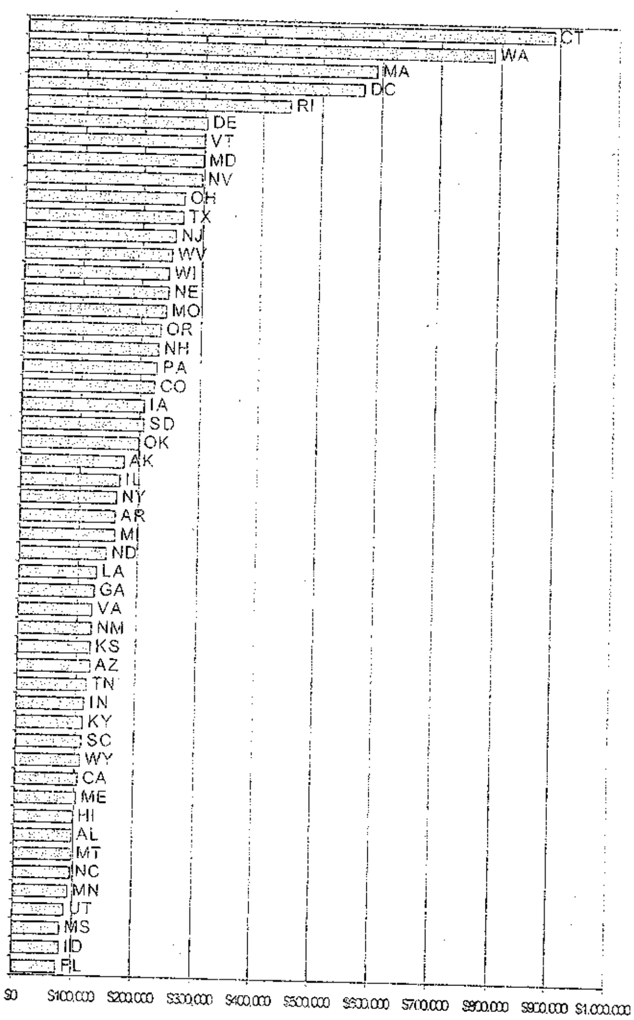

Figure A8
Fatal Benefits, Ratio to Model Act, By State, 1998

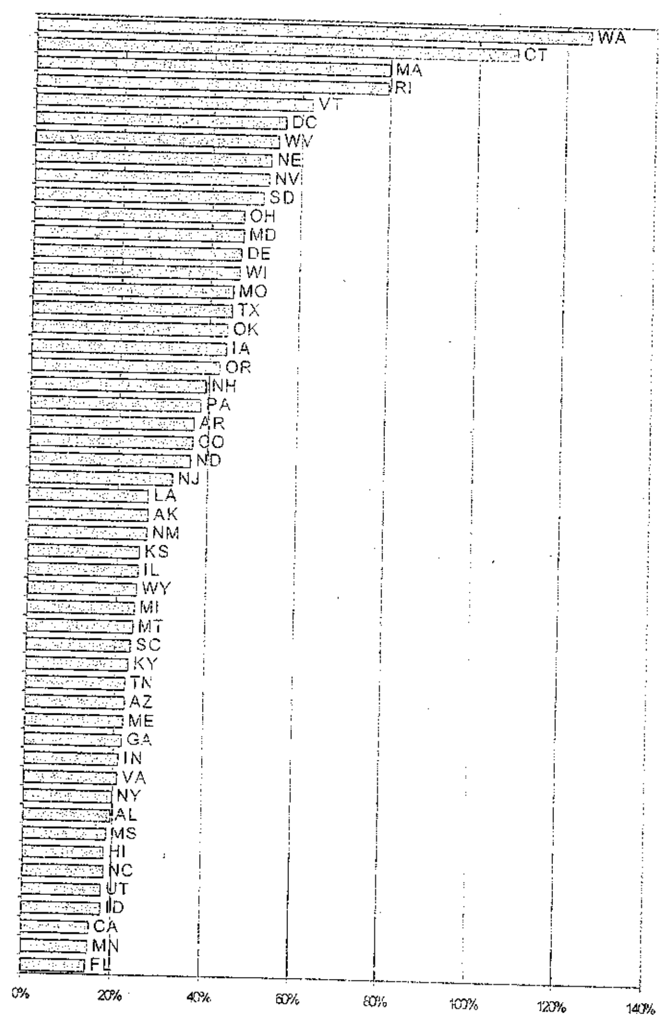

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Table A2
Injury Distribution

Fatal Injury Claims	0.23570%
Permanent Total Disability Claims	0.31620%
Major Permanent Partial Disability Claims	8.52930%
Minor Permanent Partial Disability Claims	24.08630%
Temporary Total Disability Claims	66.83240%

were 146 percent of the benefits prescribed by the *Model Act (Revised)*. Permanent partial disability benefits in 1998 were least generous in Nevada, where the benefits prescribed by the statute were 12 percent of the benefits prescribed by the *Model Act (Revised)*.

Death Benefits

Duration. While states pay death benefits to a variety of dependents, NCCI claim data indicate that over 95 percent of all fatal work injury claims involve: (1) workers with no dependents entitled to benefits or (2) workers whose sole dependents are their spouses, or their spouses and children. Consequently, our death benefit estimates were based only on these two categories of fatal injury claims (and did not consider other categories of dependency, such as parents).

In most states, the death benefit is paid to the spouse until his or her death or remarriage, while death benefits are paid to children of the deceased worker until the age of majority.[25] Most states also pay a lump sum amount, typically equivalent to two years of benefits, to the remarried spouse. In some jurisdictions, there is a limit on the duration of fatal benefit payments and/or on the total amount of death benefits paid to all dependents. Finally, all states pay for funeral benefits up to a specified maximum. We assumed that maximum funeral benefits are paid in every case.

The NCCI provided us with a distribution of fatal injuries by family status, i.e., the proportion of fatal claims involving no dependents, a spouse as the only dependent, a spouse and one child, etc. These data were combined with statutory parameters to determine an average death benefit duration, adjusted for mortality and the probability of remarriage and discounted at 3.5 percent, which, in turn, was multiplied by the average weekly benefit to obtain an average total benefit for fatal claims. We also included an expected lump sum remarriage amount as well as the maximum payment for funeral expenses.

In some states, the weekly benefit payment varied with the number of dependents. For example, in Alabama the replacement rate for a spouse with no dependent children is 50 percent of the pre-injury wage, while for a spouse with dependent children, the replacement rate is 66 2/3 percent of the wage. In these cases, we calculated two average durations for fatal benefits – the duration before the children reached the age of majority and the duration thereafter – and two average weekly benefit payments for those claimants with dependent children, one based on the amount paid to a spouse with no dependent children and the other based on the amount paid to a spouse with dependent children.

Death Benefits in 1998. For each state in each year between 1972 and 1998, average duration for death benefits was multiplied by the average weekly benefit to yield the total benefits paid to death claims. The expected death benefits by state for 1998 are shown in Figure A7. The averages ranged from \$889,348 per worker in Connecticut to \$74,463 per worker in Florida.

As a basis for evaluating the adequacy of the death benefits, we also calculated the benefits that would have been paid by each jurisdiction if it had adopted the provisions of the *Model Act (Revised)*, which are summarized in Table 1A. Figure A8 shows the ratio of actual statutory death benefits to *Model Act (Revised)* death benefits for individual states. Using this measure, death benefits are most generous in Washington, where the benefits prescribed by the statute were 125 percent of the benefits prescribed by the *Model Act (Revised)*. Death benefits in 1998 were least generous in Florida, where the benefits prescribed by the statute were 14 percent of the benefits prescribed by the *Model Act (Revised)*.

All Types of Cash Benefits

To obtain an overall measure of the generosity of cash benefits, the separate components described above were combined using the relative frequency of each type of benefit as weights. To illustrate the procedure for 1998, we combined the data shown in Figure A1 (temporary total disability benefits), Figure A3 (permanent total disability benefits), Figure A5 (permanent partial disability benefits), and Figure A7 (death benefits) to produce an expected cash benefit for all types of claims. We used the national injury distribution shown in Table A2 for this purpose. The resulting 1998 averages for all types of cash benefits are shown in Figure 5, which is in the main body of the article. A similar procedure was used for all years between 1972 and 1998 to produce the state observations that in turn were used to produce the figures and tables in this article.

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