
Notes and Brief Reports

Workers' Compensation: Coverage, Benefits, and Costs, 1979*

Workers' compensation is the oldest social insurance program in the United States. The first law was passed in 1908 to provide cash and medical benefits for work-related disability and death. This program now consists of 50 independent State operations and several Federal programs.

The experience under workers' compensation is of considerable importance to the Social Security Administration because of the relationship between workers' compensation and the Old-Age, Survivors, and Disability Insurance (OASDI) program. Since 1965, Social Security Disability Insurance benefits and workers' compensation payments have been integrated. Other types of benefits, such as payments to survivors, are paid by both systems with no attempt at coordination. Further, some workers who become disabled on the job do not receive income support from either program because of coverage exclusions, eligibility conditions, maximum benefit limits, or other restrictions.

In 1979, State and Federal workers' compensation programs paid \$11.9 billion in benefits—22 percent above the amount paid in 1978. This percentage increase was exceeded only once before, in 1973. Workers' compensation protected approximately 78.6 million workers, about 7 million fewer than the number of wage and salary workers covered under the OASDI program. This difference reflects the greater extent of coverage under Social Security of farm workers, workers in small firms, and workers in casual employment.

The cost to employers of workers' compensation was \$20.0 billion. Costs include expenditures for benefits and the monies needed to operate the insurance programs and the regulatory agencies. The almost \$3-billion increase in costs in 1979 represented a 17-percent rise over the 1978 level. Although this percentage increase was substantial, it was not as great as the percentage changes in 1976 (24 percent), 1977 (27 percent), and 1978 (21 percent).

Coverage

The Social Security Administration estimates that 78.6 million workers were covered by workers' compen-

sation laws in an average month during 1979. This number was 4 percent higher than in 1978. There have been no major changes in statutory protection for a few years, so that the number of workers covered has risen primarily with growth in the labor force.

Among the few changes in statutory protection occurring in 1979 was North Carolina's reduction in its size-of-firm restriction from five employees to four or more. New Mexico brought public employees under workers' compensation. A number of States also changed their laws with respect to the self-employed and voluntary services, in some instances broadening coverage, in others restricting it. Nationally, 89 percent of all wage and salary workers were protected by workers' compensation laws.

The payroll of workers covered under workers' compensation programs was \$1,035 billion in 1979. This amount represented a 13-percent rise in covered payroll from 1978 to 1979, which was related to the effects of rising wages and to the increase in the number of covered workers. Covered payroll accounted for 86 percent of the wages of all wage and salary workers—a proportion slightly above the 1978 level.

Benefits

In 1979, the value of cash indemnity payments and medical care benefits under workers' compensation came to \$11.9 billion (table 1). This total includes \$9.5 billion paid in the 50 States and the District of Columbia, and \$2.4 billion paid under Federal laws. An additional \$200 million was paid under other Federal laws, primarily the Longshoremen's and Harbor Workers' Compensation Act. However, the latter payments, generally made through private carriers, are included in the amounts shown for the States in which they were made.

Benefits rose by almost 22 percent, an unusually high growth rate exceeded only by the 26-percent change in 1973. As in 1973, the higher-than-usual rise in 1979 resulted from a rapidly expanding Federal black lung benefits program. The 1977 black lung program amendments brought many additional miners and their survivors into benefit status. Black lung payments rose in 1979 by 67 percent, from \$1.0 billion to \$1.7 billion.

Aside from the effect of black lung benefits, workers' compensation payments were about 17 percent above the 1978 level. This large increase was typical of the annual benefit growth that began in 1975. And typical of the large increases in 1975 through 1978, the 1979 rise was a reflection of various inflationary pressures. Aver-

* By Daniel N. Price, Division of Retirement and Survivors Studies, Office of Research and Statistics, Office of Policy, Social Security Administration.

Table 1.—Estimates of workers' compensation payments, by type of benefits, 1979 and 1978

Type of benefit	Amount of payments (in millions)		Percentage change
	1979	1978	
Total	\$11,872	\$9,735	22.0
Regular	10,160	8,712	16.6
Black lung	1,712	1,023	67.4
Medical and hospitalization	¹ 3,470	¹ 2,960	17.2
Compensation	8,402	6,775	24.0
Regular	6,704	5,754	16.5
Black lung	1,698	1,021	66.3
Disability	7,137	5,815	22.7
Regular	6,104	5,223	16.9
Black lung	1,033	592	74.5
Survivor	1,265	960	31.8
Regular	600	531	13.0
Black lung	665	429	55.0

¹ Includes \$1.7 million in 1978 and \$13.9 million in 1979 paid for medical services under the black lung program.

age wages, on which cash benefits are based, rose almost 9 percent in 1979.¹ The annual increase in average wages ranged from 6 percent to 9 percent during the previous 6 years. Hospital and medical care prices as measured by the Consumer Price Index went up 9 percent in 1979, about the same as in 4 of the previous 6 years.

Another major influence on benefit levels, namely injury and illness rates from work-related causes, was stable in 1979. For example, the Bureau of Labor Statistics reported that average workdays lost per lost workday case was 15.8 for 1979; 15.7 for 1978; and 16.4 for 1977. Thus it can be said that injury rates did not contribute markedly to the 1978-79 change in aggregate benefits paid.

About \$8.4 billion, or almost 71 percent, of workers' compensation payments in 1979 was in the form of cash compensation. The other \$3.5 billion, or 29 percent of the total, was the value of medical care services provided to disabled workers. Table 1 presents two types of cash payments information: Payments to disabled workers and payments to survivors of workers who suffered work-caused deaths. The \$7.1 billion in disability benefits in 1979 represented three-fifths of all workers' compensation payments in that year, and payments to survivors, 11 percent. Note that survivor benefits are a major component of the black lung program (39 percent in 1979) but are a much smaller part of the regular program (6 percent in 1979).

Table 2 shows benefit payments by type of insurer.

¹ Nine percent was the percentage increase in wages covered by unemployment insurance, the closest available measure for estimating wages covered under workers' compensation programs.

Excluding benefits under the black lung program, the share of benefits paid through private carriers was 61 percent; State and Federal funds, 23 percent; and self-insurers, 16 percent. These percentages have not varied much over the years.

Variation in State Benefits

Benefit payments went up from 1978 to 1979 in all States but Alaska (table 2). Similarly, all States had reported increases in aggregate benefits paid each year from 1973 through 1978. Despite a decline in payments that was experienced by one State, payments generally rose by larger percentages in 1979 than in 1978. The following tabulation shows, for example, that about 65 percent of covered employees were in States in which workers' compensation increased by at least 15 percent from 1978 to 1979. About 39 percent of workers were in States in which benefit payments increased that much from 1977 to 1978.

Percentage increase in benefits	Number of States ¹		Percentage distribution of covered workers ¹	
	1978-79	1977-78	1978-79	1977-78
Total	52	52	100.0	100.0
Increase:				
Less than 5	1	2	.3	11.8
5.0-9.9	1	5	3.5	9.0
10.0-14.9	7	16	31.1	40.7
15.0-19.9	23	14	41.3	19.6
20.0 or more	19	15	23.6	18.9
Decrease	1	0	.2	0

¹ Includes programs in all the States and the District of Columbia and the program for Federal civilian employees.

The range of aggregate benefits by States in 1979 was from \$13 million in Wyoming to \$1,422 million in California. The eight States in which at least \$300 million was paid during 1979 accounted for \$5.2 billion, or 51 percent of the national total, excluding amounts for black lung benefits. An interesting perspective is gained in noting that, for the most part, the States in which most payments were made have been the same over many years, and that these States have accounted for a smaller proportion of the national total in recent years. The following tabulation shows the States in which the largest amounts of workers' compensation benefits were paid in 1939 and 1979. The States are ranked in descending order by magnitude of payments.

Rank	1939	1979
1	New York	California
2	Pennsylvania	Ohio
3	California	Texas
4	Ohio	Illinois
5	Illinois	Michigan
6	New Jersey	New York
7	Michigan	Pennsylvania
8	Texas	Florida

Table 2.—Estimates of workers' compensation payments, by State and type of insurance, 1979 and 1978¹

[In thousands]

Jurisdiction	1979				1978				Percentage change in total payments from 1978 to 1979
	Total	Insurance losses paid by private insurance ²	State and Federal fund disbursements ³	Self-insurance payments ⁴	Total	Insurance losses paid by private insurance ²	State and Federal fund disbursements ³	Self-insurance payments ⁴	
Total	\$11,872,130	\$6,157,137	\$4,039,087	\$1,675,906	\$9,735,410	\$5,256,227	\$3,049,097	\$1,430,086	21.9
Alabama	95,972	68,472	...	27,500	84,624	60,624	...	24,000	13.4
Alaska	52,263	47,963	...	4,300	56,924	52,724	...	4,200	-8.2
Arizona	101,974	51,893	45,381	4,700	87,162	44,579	38,533	4,050	17.0
Arkansas	65,601	55,201	...	10,400	56,283	47,283	...	9,000	16.6
California	1,422,343	845,126	232,217	345,000	1,246,813	736,873	207,940	302,000	14.1
Colorado	88,667	31,890	48,677	8,100	73,789	26,279	41,010	6,500	20.2
Connecticut	105,690	95,490	...	10,200	89,033	80,433	...	8,600	18.7
Delaware	16,714	13,614	...	3,100	16,379	13,079	...	3,300	2.0
District of Columbia ..	60,269	50,309	...	9,960	51,138	44,428	...	6,710	17.9
Florida	325,940	286,940	...	39,000	307,868	270,868	...	37,000	5.9
Georgia	155,026	132,526	...	22,500	129,879	110,979	...	18,900	19.4
Hawaii	45,920	34,570	...	11,350	39,710	29,910	...	9,800	15.6
Idaho	35,175	24,382	6,393	4,400	29,873	20,825	5,348	3,700	17.7
Illinois	582,840	490,840	...	92,000	490,010	412,010	...	78,000	18.9
Indiana	103,576	87,076	...	16,500	89,708	75,408	...	14,300	15.5
Iowa	85,859	71,359	...	14,500	71,457	59,457	...	12,000	20.2
Kansas	67,933	60,533	...	7,400	56,210	50,010	...	6,200	20.9
Kentucky	119,324	102,324	...	17,000	102,594	87,994	...	14,600	16.3
Louisiana	237,523	206,523	...	31,000	198,838	172,838	...	26,000	19.5
Maine	64,112	55,612	...	8,500	44,494	38,694	...	5,800	44.1
Maryland	155,563	109,606	15,157	30,800	133,186	96,386	10,420	26,380	16.8
Massachusetts	241,388	224,888	...	16,500	191,494	178,494	...	13,000	26.1
Michigan	579,553	323,653	24,400	231,500	496,987	270,700	20,437	205,850	16.6
Minnesota	212,153	181,153	...	31,000	173,523	148,523	...	25,000	22.3
Mississippi	51,159	46,259	...	4,900	42,074	38,024	...	4,050	21.6
Missouri	106,417	93,217	...	13,200	92,170	79,970	...	12,200	15.5
Montana	33,925	12,497	5 17,678	3,750	29,403	11,883	5 13,968	3,552	15.4
Nebraska	36,210	32,610	...	3,600	28,129	25,329	...	2,800	28.7
Nevada	59,507	289	58,288	930	50,379	130	49,459	790	18.1
New Hampshire	38,876	36,326	...	2,550	30,914	28,914	...	2,000	25.8
New Jersey	296,211	265,661	...	30,550	268,441	241,621	...	26,820	10.3
New Mexico	45,862	41,662	...	4,200	36,638	33,338	...	3,300	25.2
New York	568,966	333,071	157,895	78,000	496,606	294,823	133,783	68,000	14.6
North Carolina	110,644	91,944	...	18,700	93,668	77,868	...	15,800	18.1
North Dakota	15,218	147	15,071	...	12,856	41	12,815	...	18.4
Ohio	633,309	1,509	5 450,300	181,500	531,518	1,377	5 376,141	154,000	19.2
Oklahoma	106,582	71,582	...	17,800	82,865	55,700	...	13,350	28.6
Oregon	251,409	72,668	144,141	34,600	224,398	66,389	129,409	28,600	12.0
Pennsylvania	494,632	329,003	5 56,231	109,398	407,135	271,938	5 50,444	84,753	21.5
Rhode Island	45,192	40,692	...	4,500	36,027	32,477	...	3,550	25.4
South Carolina	64,211	56,811	...	7,400	52,192	46,192	...	6,000	23.0
South Dakota	10,953	9,503	...	1,450	9,058	7,858	...	1,200	20.9
Tennessee	114,563	102,263	...	12,300	95,890	85,590	...	10,300	19.5
Texas	594,343	594,343	506,255	506,255	17.4
Utah	33,994	8,594	19,800	5,600	28,394	7,229	16,365	4,800	19.7
Vermont	13,612	12,512	...	1,100	10,446	9,596	...	850	30.3
Virginia	145,952	114,952	...	31,000	119,615	94,215	...	25,400	22.0
Washington	252,612	11,233	201,379	40,000	224,770	8,573	181,997	34,200	12.4
West Virginia	148,499	122	103,509	44,868	125,599	188	88,630	36,781	18.2
Wisconsin	152,866	125,466	...	27,400	123,333	101,233	...	22,100	23.9
Wyoming	12,939	258	12,681	...	9,603	78	9,525	...	34.7
Federal:									
Civilian employee program ⁶	691,502	...	691,502	...	617,713	...	617,713	...	11.9
Black lung benefits program ⁷	1,712,062	...	1,712,062	...	1,022,625	...	1,022,625	...	67.4
Other ⁸	8,525	...	8,525	...	8,720	...	8,720	...	2.2

¹ Data for 1979 preliminary. Calendar-year figures, except that data for Montana and West Virginia, for Federal civilian employees and "other" Federal workers' compensation, and for State fund disbursements in Maryland, Nevada, North Dakota, Utah, Washington, and Wyoming represent fiscal years ended in 1978 and 1979. Includes benefit payments under the Longshoremen's and Harbor Workers' Compensation Act and Defense Bases Compensation Act for the States in which such payments are made.

² Net cash and medical benefits paid during the calendar year by private insurance carriers under standard workers' compensation policies. Data primarily from A. M. Best Company, a national data-collecting agency for private insurance.

³ Net cash and medical benefits paid by State funds compiled from State reports (published and unpublished); estimated for some States.

⁴ Cash and medical benefits paid by self-insurers, plus the value of medical benefits paid by employers carrying workers' compensation policies that do not include the standard medical coverage. Estimated from available State data.

⁵ Includes payment of supplemental pensions from general funds.

⁶ Payments to civilian Federal employees (including emergency relief workers) and their dependents under the Federal Employees' Compensation Act.

⁷ Includes \$57,564,000 in 1978 and \$728,957,000 in 1979 paid by the Department of Labor.

⁸ Primarily payments made to dependents of reservists who died while on duty in the Armed Forces, to individuals under the War Hazards Act, War Claims Acts, and Civilian War Benefits Act, and to Civil Air Patrol and Reserve Officers Training Corps personnel, persons involved in maritime war risks, and law-enforcement officers under P.L. 90-921.

Florida displaced New Jersey in 1979. In addition, Massachusetts displaced Michigan in a few of the years between 1939 and 1979. Otherwise the list has generally been stable, although, as can be seen, the ranking among the States has changed considerably.

Workers' compensation payments in the eight leading States as a proportion of the total declined gradually throughout the 1970's. The high was 61 percent in 1939, as shown in the following tabulation:

Year	Percent	Year	Percent
1939	61	1969	57
1949	60	1971	55
1959	54	1973	55
1961	55	1975	53
1963	56	1977	52
1965	56	1979	51
1967	57		

A number of factors probably combined to produce this decreased concentration in benefit payments by large States. One such factor was the relatively slow average growth in nonagricultural employment for the eight States combined—22 percent from 1971 to 1979, compared with a 26-percent change nationally during those years. This slow rise in employment occurred despite above-average growth in three of the eight States: 39 percent in California, 29 percent in Florida, and 52 percent in Texas.

As usual, there were fairly notable differences in benefit growth by geographic region. Benefits rose an average of 27 percent in the New England States² and only 13 percent in the Pacific States,³ compared with a 17-percent growth nationwide in 1979. The South, which tended to exhibit faster benefit growth in the 1970's than other regions, rose at about the average rate nationally in 1979.

The large benefit payment increases in 1979 among the States again reflected widespread increases in statutory weekly maximum benefit rates. All States except California increased the weekly amount payable for temporary total disability in 1978 and/or 1979. Forty-two jurisdictions increased their benefit payments in both 1978 and 1979 (including the District of Columbia and Federal employees' programs) pursuant to flexible benefits provisions that automatically raise the maximums as covered worker earnings go up. Nonrecurrent increases were provided in 1978 or 1979 (or both) as a result of statutory amendments in nine States.⁴ As a result of increases during 1978, the average statutory maximum benefit for temporary total disability, weighted by covered employment, rose by 11 percent

over the year to an estimated \$205 effective January 1979.

In addition to increases in temporary total disability benefits, other benefit provisions were liberalized in at least 15 States during 1979. Most commonly, benefit formulas were improved for permanent partial or total disability and death benefits. In some cases, benefit duration limits were liberalized. In at least one State, benefits were raised to adjust for the effects of inflation on long-term beneficiaries already on the rolls.

Employer Costs

In 1979, the total cost to employers of workers' compensation was \$20.0 billion, which was about 17 percent above the 1978 level. This cost excludes benefit costs funded by general revenues—that is, payments under the Federal black lung benefits program and supplemental benefits paid in a few States.⁵

Costs, as defined here, refer to the amounts spent by employers as premium payments to private insurance companies and State insurance funds or as self-insurance benefits (including administrative costs, estimated at 5–10 percent of self-insurance benefits). These costs consisted of (1) \$14.3 billion for premiums paid to private carriers; (2) \$3.8 billion for premiums paid to State funds (for Federal programs, these "premiums" are the sum of the benefit payments and the costs of the administrative agency); and (3) about \$1.8 billion for the cost of self-insurance benefits and administration.

Although the 17-percent rise of workers' compensation costs in 1979 was one of the largest annual changes in the past 30 years, it nevertheless was not as large as the increments from 1976 through 1978: 24 percent, 27 percent, and 21 percent, respectively. Costs relative to payroll in 1979 were 1.93 percent—0.07 points above the previous year's level. The ratio of benefits to payroll was 98 cents per \$100, an increase of 3 cents over 1978. The difference between the benefit-payroll and cost-payroll rates is attributable to overhead costs of insuring the risk above direct benefit payments. Thus, premiums (costs) include expenses of policy writing, claims investigating and adjusting, increases in reserves to match increases in accrued liabilities, payroll auditing, and other administrative expenses as well as applicable profits.

Because benefits and costs rose by about the same percentage, the benefit-cost relationship remained stable—50.9 percent in 1979, compared with 51.0 percent in 1978. The rate had fallen in the previous 3 years, from a high of 62.4 percent in 1975. Before that year, the benefit-cost ratio had not been below 56.1 percent since 1948. The 1975–78 decline was associated with at-

² Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

³ Alaska, California, Hawaii, Oregon, and Washington.

⁴ Arizona, Arkansas, Georgia, Indiana, Mississippi, Missouri, Nebraska, New York, and Tennessee.

⁵ Cost data will be reported by the Office of Research and Statistics as they become available for those black lung benefit costs that are to be financed by employers under the Black Lung Benefits Revenue Act of 1977.

tempts to anticipate high rates of benefit inflation in setting premium levels. Although it remains to be seen, 1979 may represent a turnabout year in benefit-cost relationships. The ratio of workers' compensation benefits paid to premiums written for private insurance was 43.0 percent. Like the overall ratio, the private carrier ratio in 1979 was just slightly lower than it had been in 1978 (43.2 percent) after large annual drops from 53.9 percent in 1975.

When computed on the basis of benefits incurred and premiums earned, the benefit-cost ratio for private carriers was 70.4 percent in 1979. The ratio based on losses incurred is an important measure since it is commonly used by insurance organizations in evaluating and revising their premium rates. This measure takes into account growing amounts of premium income that must be set aside to cover liabilities for payments in future years. The ratio of losses incurred to costs had been climbing in most of the 10 years through 1977. Declines in 1978 and 1979 toward previous long-term levels may therefore be another indication that the effects of inflation on benefit-cost rates are stabilizing.

Public funds, the other sector of the workers' compensation system for which benefit-cost data are available, also reported some apparent reversal of recent trends. The ratio of benefits paid to premiums written for State funds was 51.8 percent in 1979. This level constituted a small increase from 50.0 percent in 1978, following a series of declines from 76.2 percent in 1975. Altogether then, the data indicate that the major downturn observed in the rates of benefits paid to premiums written in the mid-1970's may have slowed down or ended in 1979.

Book Review

Experimental Methodology (2nd edition), by Larry B. Christensen. Boston: Allyn & Bacon, Inc., 1980. \$16.95. 432 pages.

Too frequently, one notices causes and effects asserted in the social and behavioral sciences without due consideration of alternative explanations for their occurrence. Two illustrations of this problem are the leap from correlation to causation and the attribution of effects, particularly those occurring over extended periods of time, as necessarily having been caused by experimental treatments. For example, studies investigating the relationship of race and intelligence have used correlational data as "conclusive" evidence of genetically caused differences in intelligence between the races. Similarly, studies of the effects of flextime upon worker productivity have reached conclusions about its effectiveness, without regard for or control of environmental changes occurring during the course of the study. Although many of the factors in research with

human subjects are the result of social processes, it is unfortunate that consideration of these factors is often either ignored or treated cursorily in experimental design textbooks.

Drawing heavily on the work of Campbell and Stanley in **Experimental and Quasi-Experimental Designs for Research**, Christensen attempts to remedy these problems by presenting principles for sound experimental practice within a social-psychological framework. That is, he emphasizes the need for identification and control of impediments to internal and external validity in both the laboratory and the "real world." As used here, internal validity refers to the control of extraneous variables such as history—events occurring between initial and final measurements of a dependent variable—and instrumentation—changes in observers or measuring instruments. The term external validity refers to problems in generalizability of research findings.

In addition to providing suggestions for improving internal and external validity, Christensen also emphasizes the need for analyzing the effects of social factors involving researchers and study participants for valid interpretation of experimental data. Many authors have treated experimental research as if social-psychological variables did not exist. This omission may be traced to early work in the design of experiments in agriculture by Fisher and others. The trouble with this approach, however, is that the relative effects of physical variables, such as amount of precipitation on crop yield, may be inappropriate for research involving humans in which the effects of social processes upon cognitive and performance variables can be critically important.

The appropriateness of transplanting to human research the explanatory model developed for agriculture, is, therefore, problematical. To avoid superficial or erroneous interpretations or conclusions, phenomena such as social desirability, influence, and demand factors resulting from the subject/experimenter interactions need to be considered in the design process. These interactions may affect expectations, perceptions, cognitions, or performance behavior that is often the dependent variable in the research design. Christensen describes these phenomena and their possible effects in detail. He also identifies interactions involving subjects and experimenters that could profoundly affect the experimental results. His chapters on control in experimentation, techniques for achieving constancy, and quasi-experimental design are quite helpful in focusing on the roles and potential biases of experimenters and subjects. Other chapters on evaluation research, generalization, and ethics are also relevant and should be instructive to members of the research community.

Another strength of this book is the author's promotion of pretests and debriefing interviews in the design phase of experimental research. Although pretests are frequently used by survey researchers, their use is not