

Workers' compensation insurance: recent trends in employer costs

Costs of insuring against work-related injuries and diseases have escalated rapidly since 1972; growing variation in premiums among States over the same period may indicate unequal rates of improvement in workers' compensation laws

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The workers' compensation program provides cash benefits, medical care, and rehabilitation services for persons who experience job-related injuries and diseases. Because each State operates its own compensation program, the levels of protection for workers and the associated costs of the plan to employers differ considerably among jurisdictions. Variations among jurisdictions in the insurance arrangements available to employers may also affect premiums: 32 States and the District of Columbia allow employers to purchase insurance from private carriers; six States only allow purchase from a State fund; and 12 States permit a choice between private carriers and State funds. In addition, all but four States allow employers with sufficient financial ability and satisfactory records for paying past claims to self-insure.¹

The existence of interstate differences in the cost of workers' compensation insurance raises certain questions with policy implications. Are the variations in premiums great enough to influence employers' decisions to locate their establishments? And, do recent trends in premium levels indicate any reluctance by States to boost program benefits and costs, for fear of losing employers to lower cost jurisdictions?

As a first step toward answering such questions, this article presents estimates of employers' costs of insurance purchased from private carriers or State funds in 47 jurisdictions² as of July 1, 1978. Historical information since 1950 is also provided for a smaller number of jurisdictions. The following discussion is a condensed

and updated version of a more comprehensive report³ that details the methodology used to derive the cost estimates.

Measuring insurance costs

Employers' costs of workers' compensation insurance may be measured in several ways. For purposes of this study, three combinations of employers that account for substantial percentages of national payroll were selected, and the costs of workers' compensation insurance for these groups of employers were determined for each State. This procedure makes possible an estimate of the differences in insurance costs which employers would encounter by moving among the States.⁴

The first combination consists of 45 types of employers for which workers' compensation insurance rates are available since 1950. This group includes 13 manufacturing, seven contracting, and 25 other types of firms, and accounts for almost 57 percent of the payroll covered by workers' compensation insurance.⁵ The second combination represents 25 types of manufacturing employers which comprise 10 percent of covered payroll; rates for this groups are available since 1958. The third combination, for which rates are only available since 1972, includes 30 manufacturing, 13 contracting, and 36 other types of employers; these 79 types of firms account for 72 percent of covered payroll.⁶

Insurance rates for each type of employer may be obtained from a State manual. These manual rates are given in dollars per \$100 of weekly earnings for each employee. Table 1 shows the average July 1, 1978, manual rates for the three combinations of employers in 47 jurisdictions. As indicated, the average manual rate for the 45 types of employers was \$1.043 per \$100 of pay-

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roll in Alabama, while the same group of employers in Alaska had a mean rate of \$2.149.

However, estimates of average manual rates provide only a beginning toward accurate interstate comparisons of workers' compensation costs. For many employers, the weekly premium is not simply the product of the manual rate and the weekly payroll. Rather, their insurance costs are influenced by premium discounts for quantity purchases, dividends received from mutual companies and participating stock companies, modifications of the manual rate resulting from the employer's own accident experience, and other factors.

Consequently, the average employer in the 45 States with private insurance carriers pays an adjusted manual rate that is 18 percent less than the published manual rate.⁷ In Ohio and West Virginia—States with State insurance funds and no private carriers—manual rates are reduced, on average, 7.5 percent and 31.4 percent respectively to arrive at adjusted manual rates.⁸

The average adjusted manual rates for the three combinations of employers as of July 1, 1978, are also found in table 1. Although the average manual rate for the 45 types of employers in Alabama was \$1.043 per \$100 of payroll, the average *adjusted* manual rate for

Table 1. Employers' average weekly costs of workers' compensation insurance in 47 jurisdictions, July 1, 1978

Jurisdiction	Manual rates (per \$100 of payroll)			Adjusted manual rates (per \$100 of payroll)			Net costs of insurance (per employee)		
	45 types of employers	25 types of manufacturing employers	79 types of employers	45 types of employers	25 types of manufacturing employers	79 types of employers	45 types of employers	25 types of manufacturing employers	79 types of employers
Alabama	\$1.043	\$2.041	\$1.295	\$0.855	\$1.674	\$1.062	\$1.544	\$3.022	\$1.918
Alaska	2.149	3.484	2.524	1.762	2.857	2.070	4.879	7.910	5.731
Arizona	3.055	5.546	3.686	2.505	4.548	3.023	5.294	9.610	6.387
Arkansas	1.576	3.023	1.903	1.292	2.479	1.560	2.078	3.986	2.509
California	2.604	5.173	3.238	2.135	4.241	2.655	4.816	9.567	5.989
Colorado	1.475	3.159	1.812	1.210	2.590	1.486	2.554	5.469	3.137
Connecticut	1.650	3.434	2.140	1.353	2.816	1.755	2.768	5.762	3.590
Delaware	1.742	3.544	(¹)	1.428	2.906	(¹)	2.922	5.944	(¹)
District of Columbia	4.271	8.063	5.098	3.502	6.612	4.181	8.199	15.480	9.788
Florida	3.221	5.733	3.764	2.641	4.701	3.086	4.793	8.531	5.600
Georgia	1.313	2.886	1.634	1.077	2.366	1.340	1.912	4.202	2.380
Hawaii	2.508	5.060	3.232	2.057	4.149	2.650	3.964	7.996	5.108
Idaho	1.569	2.813	1.961	1.287	2.307	1.608	2.238	4.013	2.797
Illinois	1.685	2.965	2.012	1.382	2.431	1.649	3.063	5.390	3.657
Indiana	.585	1.109	.713	.480	.910	.585	1.015	1.927	1.239
Iowa	1.322	2.114	1.569	1.084	1.734	1.286	2.190	3.502	2.599
Kansas	1.072	2.061	1.297	.879	1.690	1.064	1.659	3.190	2.008
Kentucky	1.685	3.737	2.215	1.382	3.064	1.816	2.781	6.166	3.655
Louisiana	1.844	4.027	2.359	1.512	3.302	1.934	2.909	6.354	3.721
Maine	1.684	3.571	2.038	1.380	2.929	1.671	2.581	5.476	3.125
Maryland	1.539	3.019	1.861	1.262	2.476	1.526	2.526	4.955	3.055
Massachusetts	1.674	3.934	2.166	1.373	3.226	1.776	2.757	6.479	3.567
Michigan	2.305	6.140	3.040	1.890	5.035	2.493	4.370	11.641	5.764
Minnesota	2.220	5.081	2.800	1.821	4.167	2.296	3.733	8.543	4.709
Mississippi	1.100	1.903	1.336	.902	1.561	1.096	1.457	2.521	1.770
Missouri	.903	1.771	1.136	.740	1.452	.832	1.196	2.345	1.505
Montana	1.712	2.781	2.064	1.404	2.280	1.692	2.795	4.539	3.368
Nebraska	.865	1.573	1.015	.710	1.290	.834	1.484	2.698	1.744
New Hampshire	1.422	2.883	1.850	1.166	2.364	1.517	2.128	4.314	2.769
New Jersey	2.057	4.249	2.418	1.687	3.484	1.983	3.651	7.541	4.292
New Mexico	1.757	3.827	2.165	1.441	3.138	1.775	2.479	5.400	3.054
New York	2.158	4.678	2.639	1.770	3.836	2.164	3.844	8.332	4.701
North Carolina	.649	1.314	.830	.532	1.077	.680	.899	1.820	1.149
Ohio	1.664	2.904	1.977	1.550	2.697	1.839	3.352	5.834	3.979
Oklahoma	1.763	4.320	2.293	1.446	3.542	1.880	2.654	6.503	3.451
Oregon	3.558	7.841	4.600	2.918	6.430	3.772	6.288	13.858	8.130
Pennsylvania	1.431	3.125	(¹)	1.173	2.563	(¹)	2.382	5.202	(¹)
Rhode Island	1.589	3.978	2.002	1.303	3.262	1.641	2.387	5.975	3.007
South Carolina	1.020	2.094	1.286	.836	1.717	1.055	1.360	2.794	1.716
South Dakota	1.027	1.725	1.222	.842	1.414	1.002	1.649	2.769	1.962
Tennessee	1.101	2.339	1.435	.903	1.918	1.177	1.666	3.538	2.171
Texas	2.137	4.338	2.708	1.753	3.557	2.220	3.293	6.683	4.172
Utah	1.087	2.000	1.320	.892	1.640	1.083	1.701	3.130	2.066
Vermont	1.067	1.996	1.267	.875	1.637	1.039	1.646	3.079	1.955
Virginia	1.074	1.645	1.283	.880	1.349	1.052	1.525	2.337	1.824
West Virginia	.962	1.914	(¹)	.660	1.313	(¹)	1.229	2.444	(¹)
Wisconsin	.917	1.852	1.174	.752	1.519	.963	1.582	3.198	2.027

¹ Data are not available.

the group was \$0.855, reflecting the 18-percent reduction. Adjusted manual rates may be interpreted as the cost of workers' compensation insurance as a percentage of payroll; thus, for the 45 types of Alabama employers, premiums were the equivalent of 0.855 percent of payroll.

The average weekly insurance premium per worker provides another measure of employers' costs of workers' compensation. The adjusted manual rate multiplied by the State's average weekly wage yields the approximate net cost of insurance to policyholders.⁹ Again according to table 1, the average weekly net cost of insurance as of July 1, 1978, for the 45 types of employers in Alabama was \$1.544 per employee.

Historical data

Information on employers' costs of workers' compensation insurance is available for the 45 types of employers for selected years since 1950. Data for 20 States are available for 8 years between 1950 and 1978; data for eight more States are available for 6 years between 1958 and 1978; 42 jurisdictions have data for 1972, 1975, and 1978; and by 1978, 47 jurisdictions may be compared.

The average adjusted manual rates for the 45-employer group are shown in table 2. As indicated, Alabama employers expended, on average, the equivalent of 0.282 percent of payroll on workers' compensation premiums in 1950, compared with 0.855 percent in 1978. Table 3 presents the approximate net cost to the same group of policyholders for several years between 1950 and 1978. These results show, for example, that the employers in Alabama expended a weekly average of \$0.136 per worker on premiums in 1950, and \$1.544 in 1978.

The data in tables 2 and 3 are valuable for tracing changes in workers' compensation costs over time in a particular State, but the volume of information makes it difficult to comprehend general developments. Tables 4 and 5 provide a compact summary of these data, permitting evaluation of interstate trends.

Table 4, for example, illustrates the changes over time in the average adjusted manual rates for the various combinations of States. Each State's observation was weighted by the size of the State's labor force in 1970 to provide results which are representative of the national experience.

The mean adjusted manual rate in the 20 States was the equivalent of 0.471 percent of payroll in 1950, 0.651 percent in 1972, and 1.185 percent in 1978. Of particular interest is the rise in cost between 1972 and 1978, which was more than double the 1950-72 increase. The average employer in the 28- and 42-jurisdiction comparisons also experienced large increases in premiums between 1972 and 1978. Data for the latter combination of jurisdictions indicate that the average employer spent an amount equal to 1.461 percent of payroll on work-

Table 2. Average weekly adjusted manual rates per \$100 of payroll for 45 types of employers in 47 jurisdictions, selected years, 1950 to 1978

Jurisdiction	Year							
	1950	1954	1958	1962	1965	1972	1975	1978
Alabama	\$0.282	\$0.310	\$0.348	\$0.364	\$0.437	\$0.479	\$0.599	\$0.855
Alaska						.832	1.721	1.762
Arizona						1.385	2.178	2.505
Arkansas						.915	1.038	1.292
California			.707	.858	1.183	1.102	1.406	2.135
Colorado						.649	.654	1.210
Connecticut	.660	.838	.812	.762	.689	.697	.827	1.353
Delaware						.578	.736	1.428
District of Columbia						.737	1.404	3.502
Florida								2.641
Georgia						.501	.760	1.077
Hawaii						.960	1.335	2.057
Idaho	.519	.664	.581	.582	.667	.865	1.283	1.287
Illinois	.437	.497	.514	.609	.624	.657	1.002	1.382
Indiana	.358	.363	.410	.398	.430	.385	.417	.480
Iowa						.451	.662	1.084
Kansas						.575	.766	.879
Kentucky	.390	.369	.394	.448	.558	.668	1.065	1.382
Louisiana								1.512
Maine	.415	.398	.340	.370	.337	.520	.981	1.380
Maryland	.501	.600	.661	.747	.854	.816	1.009	1.262
Massachusetts			.859	1.034	1.141	1.106	1.171	1.373
Michigan	.476	.416	.450	.694	.715	.914	1.238	1.890
Minnesota			.653	.692	.738	.854	1.240	1.821
Mississippi	.638	.727	.758	.988	.980	.751	.902	.902
Missouri								.740
Montana	.590	.644	.792	.721	.845	.948	1.565	1.404
Nebraska	.572	.474	.437	.527	.447	.529	.789	.710
New Hampshire	.528	.586	.531	.495	.560	.534	.746	1.166
New Jersey			.911	1.054	1.039	1.224	1.233	1.687
New Mexico	.463	.858	.838	.863	.945	.787	1.069	1.441
New York						.864	.973	1.770
North Carolina	.392	.512	.473	.492	.474	.420	.433	.532
Ohio			.627	.813	.820	.885	1.109	1.550
Oklahoma							1.052	1.446
Oregon			.630	1.007		1.491	2.074	2.918
Pennsylvania			.355	.396	.386	.387	.776	1.173
Rhode Island	.829	.930	.831	.834	.842	.767	.899	1.393
South Carolina	.658	.607	.567	.690	.696	.609	.590	.836
South Dakota	.537	.400	.315	.392	.389	.511	.635	.842
Tennessee						.664	.710	.903
Texas								1.753
Utah	.524	.545	.502	.422	.531	.503	.766	.892
Vermont	.398	.457	.524	.505	.595	.514	.588	.875
Virginia						.391	.539	.880
West Virginia			.268	.345	.404	.428	.671	.660
Wisconsin			.523	.556	.603	.505	.581	.752

NOTE: Dashes indicate data not available.

ers' compensation premiums in 1978.¹⁰

The average adjusted manual rate for any year obviously reflects some State data which are higher than the mean and some which are lower. For example, the mean adjusted rate for the 20 States was 0.471 percent of payroll in 1950, but the average employer in Alabama paid only 0.282 percent of payroll for workers' compensation insurance while his or her counterpart in Rhode Island paid 0.829 percent. A statistic providing a convenient summary of the extent of variation among the States around the mean cost is the standard deviation.¹¹ The larger the standard deviation, the greater the variation among the States in the percentage equivalent of payroll expended on workers' compensation insurance. The data in table 4 indicate that over time the

magnitude of such variation has increased.

Table 5 traces the net cost to policyholders for the 45 types of employers between 1950 and 1978. The average employer in the 20 States spent \$0.249 per week on workers' compensation premiums for each worker in 1950, \$0.945 in 1972, and \$2.468 in 1978. Again, the sharp increase in costs after 1972 is evident from data for each combination of jurisdictions. In 1978, the mean weekly premium for employers in the 42 jurisdictions was just over \$3.09 per worker.¹²

Table 5 also shows the extent of variation among the States around the net cost to policyholders. In 1950, when the average cost was \$0.249 per worker per week

Table 3. Average weekly net costs of insurance per employee for 45 types of employers in 47 jurisdictions, selected years, 1950 to 1978

Jurisdiction	Year							
	1950	1954	1958	1962	1965	1972	1975	1978
Alabama	\$0.136	\$0.183	\$0.242	\$0.281	\$0.369	\$0.611	\$0.938	\$1.544
Alaska						1.627	4.127	4.879
Arizona						2.066	3.985	5.293
Arkansas						1.040	1.447	2.078
California			.631	.858	1.296	1.755	2.746	4.816
Colorado						.968	1.196	2.554
Connecticut	.353	.548	.627	.669	.663	1.008	1.467	2.768
Delaware						.835	1.304	2.922
District of Columbia						1.219	2.847	8.199
Florida								4.793
Georgia						.629	1.169	1.912
Hawaii						1.306	2.229	3.964
Idaho	.253	.396	.409	.447	.561	1.063	1.933	2.238
Illinois	.261	.363	.443	.588	.660	1.029	1.925	3.063
Indiana	.197	.245	.326	.357	.422	.576	.766	1.016
Iowa						.644	1.159	2.190
Kansas						.767	1.253	1.659
Kentucky	.205	.237	.299	.380	.518	.949	1.856	2.781
Louisiana								2.909
Maine	.195	.229	.230	.286	.286	.687	1.588	2.581
Maryland	.266	.390	.507	.639	.800	1.154	1.750	2.526
Massachusetts			.660	.888	1.073	1.569	2.037	2.757
Michigan	.271	.290	.370	.655	.740	1.493	2.480	4.370
Minnesota			.519	.620	.724	1.237	2.203	3.733
Mississippi	.273	.382	.469	.671	.729	.856	1.261	1.457
Missouri								1.196
Montana	.310	.414	.600	.584	.750	1.330	2.695	2.795
Nebraska	.303	.308	.335	.468	.435	.782	1.430	1.484
New Hampshire	.250	.339	.363	.385	.477	.689	1.179	2.128
New Jersey			.759	.993	1.072	1.872	2.312	3.651
New Mexico	.249	.565	.650	.722	.866	.957	1.594	2.479
New York						1.326	1.830	3.844
North Carolina	.167	.267	.291	.335	.354	.501	.634	.899
Ohio			.509	.755	.834	1.352	2.077	3.352
Oklahoma							1.673	2.654
Oregon			.541	.949		2.269	3.872	6.288
Pennsylvania			.280	.346	.369	.554	1.365	2.382
Rhode Island	.404	.555	.586	.656	.726	.993	1.427	2.387
South Carolina	.284	.321	.353	.500	.553	.700	.832	1.360
South Dakota	.274	.250	.233	.330	.358	.706	1.077	1.649
Tennessee						.866	1.134	1.666
Texas								3.293
Utah	.283	.361	.392	.365	.504	.678	1.267	1.701
Vermont	.192	.270	.365	.396	.511	.684	.963	1.646
Virginia						.478	.808	1.525
West Virginia			.200	.279	.358	.563	1.069	1.229
Wisconsin			.412	.494	.587	.751	1.060	1.582

NOTE: Dashes indicate data not available.

Table 4. Means and standard deviations¹ of adjusted manual rates for 45 types of employers in various combinations of jurisdictions, selected years, 1950 to 1978
[Percent of total payroll]

Year	20 jurisdictions ²		28 jurisdictions ³		42 jurisdictions ⁴	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1950	0.471	0.108	.....	.....	.....	.....
1954	.512	.145	.....	.....	.....	.....
1958	.521	.133	0.587	0.172	.....	.....
1962	.599	.150	.689	.212	.....	.....
1965	.623	.150	.760	.277	.....	.....
1972	.651	.171	.776	.276	0.774	0.271
1975	.871	.284	1.006	.302	.995	.328
1978	1.185	.446	1.409	.488	1.461	.543

¹ Results are based on data in table 2. Weights are each jurisdiction's total nonagricultural employment from *Employment and Earnings Statistics for States and Areas, 1939-70*, Bulletin 1370-8, (Bureau of Labor Statistics, 1971).
² The 20-jurisdiction combination consists of: Alabama, Connecticut, Idaho, Illinois, Indiana, Kentucky, Maine, Maryland, Michigan, Mississippi, Montana, Nebraska, New Hampshire, New Mexico, North Carolina, Rhode Island, South Carolina, South Dakota, Utah, and Vermont.
³ The 28-jurisdiction combination includes the 20 States listed in footnote 2 plus California, Massachusetts, Minnesota, New Jersey, Ohio, Pennsylvania, West Virginia, and Wisconsin.
⁴ The 42-jurisdiction combination includes the 28 States in footnote 3 plus Alaska, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Hawaii, Iowa, Kansas, New York, Oregon, Tennessee, and Virginia.
 NOTE: Dashes indicate data not available.

in the 20 States, the standard deviation among the States was \$0.056. By 1978, however, the mean weekly cost per worker was \$2.468—up almost 10-fold since 1950—while the standard deviation (\$1.113 in 1978) had grown nearly 20-fold over the same period.

The adjusted manual rate is probably the most useful and comprehensive measure of cost because, as previously noted, it may be interpreted as the percentage equivalent of payroll expended on workers' compensation insurance premiums. Chart 1 shows the trend in the average adjusted manual rates for the 45 types of employers in the 20 States for which there are comparable data since 1950.

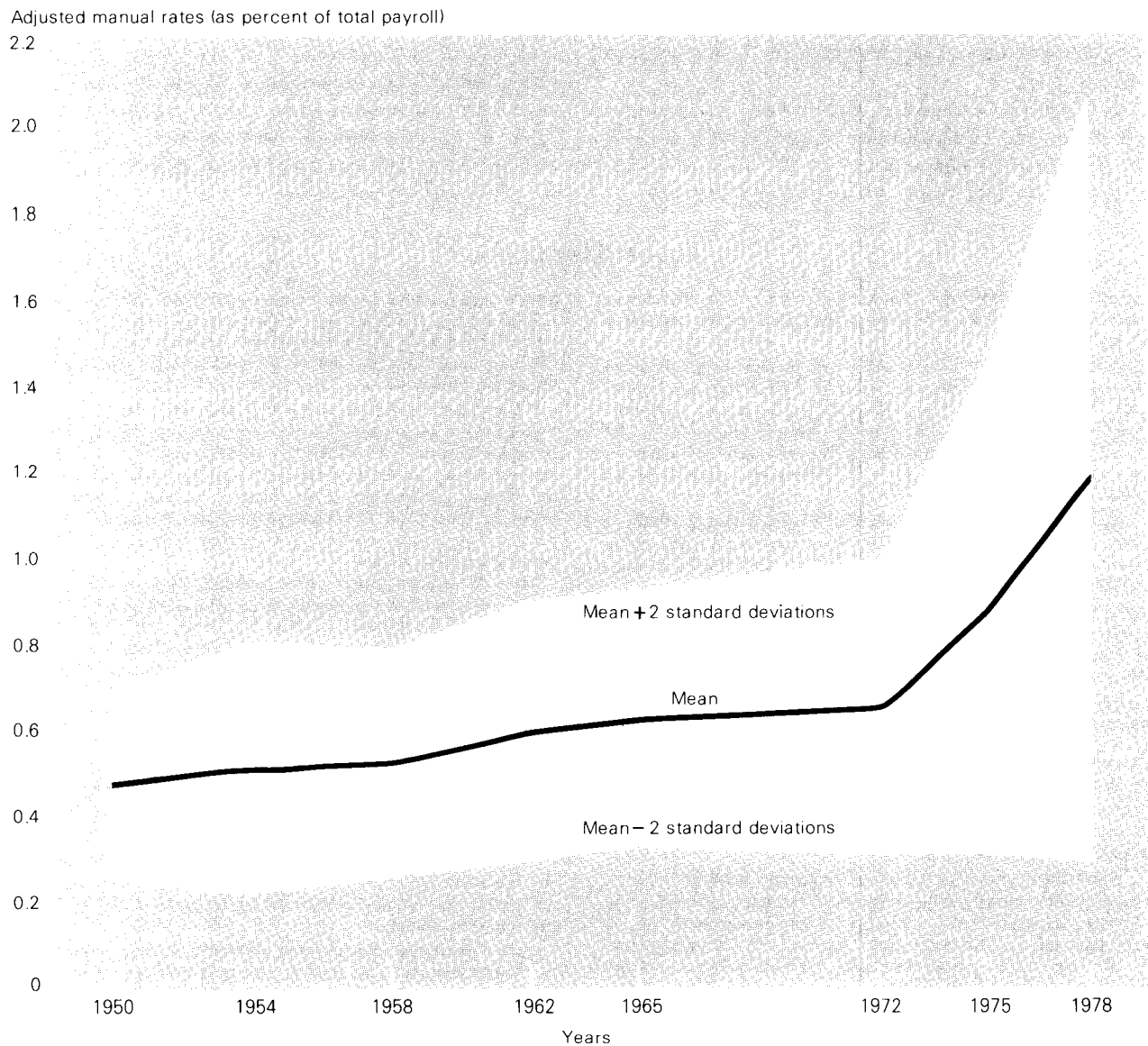
The solid line in chart 1 tracks the weighted mean of the rates for the eight observations (years) available. The surrounding light area delineates the values of the

Table 5. Means and standard deviations¹ of net weekly costs of insurance for 45 types of employers in various combinations of jurisdictions, selected years, 1950 to 1978

Year	20 jurisdictions		28 jurisdictions		42 jurisdictions	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1950	\$0.249	\$0.056	.....	.....	.....	.....
1954	.330	.092	.....	.....	.....	.....
1958	.399	.104	\$0.472	\$0.153	.....	.....
1962	.518	.139	.625	.215	.....	.....
1965	.590	.154	.760	.317	.....	.....
1972	.945	.311	1.160	.461	\$1.150	\$0.454
1975	1.563	.610	1.848	.643	1.817	.689
1978	2.468	1.113	3.000	1.197	3.093	1.328

¹ Results are based on data in table 3. See footnotes to table 4 for other information pertaining to this tabulation.
 NOTE: Dashes indicate data not available.

Chart 1. Means and standard deviations of adjusted manual rates for employers in 20 States, selected years, 1950 to 1978



NOTE: Assuming a normal distribution, adjusted manual rates for approximately 95 percent of the States should fall within ± 2 standard deviations of the mean.

adjusted manual rates that are within 2 standard deviations of the mean. This range (mean ± 2 standard deviations) is a useful statistical measure because, assuming a normal distribution, approximately 95 percent of the individual State averages will fall within the interval.

Chart 1 and tables 3 and 4 tell a consistent story: on average, employers' premiums for workers' compensation insurance have increased sharply since 1972, and at the same time, cost differences among jurisdictions have widened considerably.

MANY FACTORS outside the purview of this article influence the level of and trend in workers' compensation insurance premiums, including the extent of litigation, differing legal interpretations of statutory provisions, the local cost of medical and rehabilitation services for victims of job-related injuries and diseases, and the approach used by the State to compensate permanent partial disabilities.¹³ However, recent increases in the multistate premium averages may also be explained in part by the States' modifications of their programs in

response to recommendations contained in the 1972 Report of the National Commission on State Workmen's Compensation Laws.¹⁴ Similarly, there are several possible reasons for the growth of interstate variations in costs, the most controversial being differences among States in the extent of improvement in their laws since 1972.¹⁵

The National Commission unanimously advised that Federal workers' compensation standards be enacted in 1975 if States had not adopted its 19 essential recommendations by that time. An underlying rationale for

mandated standards was to reduce interstate differences in employers' insurance premiums. The Commission considered these variations a likely impediment to State reform of workers' compensation programs; State legislatures might perceive the higher costs of better insurance plans as an incentive for employers to locate in other, lower cost jurisdictions. If the growth in interstate cost differentials since 1972 is related to unequal rates of improvement in State statutes,¹⁶ the case for Federal minimum standards for workers' compensation is considerably strengthened. □

— FOOTNOTES —

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¹ The enumerated insurance arrangements pertain to private sector employers which are the focus of this article. These data are from C. Arthur Williams, Jr., and Peter S. Barth, *Compendium on Workmen's Compensation* (Washington, Government Printing Office, 1973). Because information on self-insurers is limited, and such employers account for a small percentage of benefit payments, these firms are excluded from the analysis.

² Programs in Nevada, North Dakota, Washington, and Wyoming allowed insurance only through a State fund, and the insurance classifications were not comparable with those in the remaining 47 jurisdictions. Therefore, these States were excluded from the analysis.

³ John F. Burton, Jr., "Workers' Compensation Costs for Employers," *Research Report of the Interdepartmental Workers' Compensation Task Force*, Vol. 3 (Washington, Government Printing Office, 1979), pp. 9-32. An errata sheet for this study is available from the author.

⁴ Some employers provide benefits in addition to workers' compensation to their employees who are disabled by work-related injuries or diseases. To the extent that these benefits are integrated with workers' compensation benefits, the changes in total costs for work-related disability benefits resulting from interstate movements by employers may vary from the cost differences examined in this article. There are insufficient data to make an estimate of the interstate differences in the costs of these additional benefits.

⁵ In five States included in this study, employers' liability for workers' compensation premiums is limited to a maximum amount of an employee's weekly earnings ("covered pay"). In Massachusetts, for example, premiums are based on only the first \$300 of weekly pay. Thus, in some States, payroll covered by workers' compensation insurance is less than total payroll.

⁶ Table 3 in *Research Report of the Task Force* provides a detailed description of each of the 79 types of employers and information on the percent of payroll in 28 States accounted for by the various combinations of employers. Examples of manufacturing employers are bakeries, foundries, and furniture mills. Contracting employers include firms doing plumbing, concrete work, and street construction. "Other" establishments include retail stores, hospitals, and general employers of sales and clerical workers.

⁷ The derivation of the 18-percent difference between manual rates and adjusted manual rates is provided in Section D of *Research Report of the Task Force*. The 18-percent figure is a national average based on experience in 34 jurisdictions. The actual difference will vary somewhat among States, depending on such factors as the relative importance of mutual companies, participating stock companies, and nonparticipating stock companies.

⁸ Section D of *Research Report of the Task Force* explains the derivation of the percentages used to reduce manual rates in order to calculate adjusted manual rates in Ohio and West Virginia.

⁹ As explained in Section F of *Research Report of the Task Force*, the net cost to policyholders in a State (or other jurisdiction) is calculated by multiplying the product of the adjusted manual rate and the

State's index number (which measures the State's earnings relative to U.S. earnings in 1970) by the national average of weekly earnings for workers covered by the unemployment insurance program. For 1976 (the latest year for which data were available when the tables for this article were prepared), the latter figure was \$203.88.

¹⁰ The text indicates that in the 42 jurisdictions, the 45 types of employers spent, on average, 1.461 percent of payroll on workers' compensation premiums in 1978. This combination of jurisdictions and employers was chosen to provide historically comparable data. For the largest combination of employers (79) and jurisdictions (44) shown in table 1, the average employer spent the equivalent of 1.843 percent of payroll on workers' compensation premiums in 1978, based on weighted observations.

The 1.843-percent figure is close to Daniel Price's estimate that premium costs nationally (including Federal and self-insurance, but excluding programs financed by general revenue, such as the black lung program) were 1.85 percent of payroll in 1978. Price's estimate is included in "Workers' Compensation: 1978 Program Update," *Social Security Bulletin*, October 1980, pp. 3-10.

For a comparison of the estimating procedures used by Price and Burton, involving 1975 data, see *Research Report of the Task Force*, footnote 35.

¹¹ For an elementary discussion of the standard deviation, see Daniel B. Suits, *Statistics: An Introduction to Quantitative Economic Research* (Chicago, Rand McNally and Co., 1963), pp. 38-52.

¹² For the largest combination of employers (79) and jurisdictions (44) shown in table 1, the average employer spent \$3.915 per week per worker on workers' compensation insurance in 1978, based on weighted observations.

¹³ For a discussion of some of these factors, see John F. Burton, Jr., *The Significance and Causes of the Interstate Variations in the Employers' Costs of Workmen's Compensation* (Ph.D. diss., University of Michigan, 1965). The results of a study of interstate cost differences associated with various approaches to permanent partial disability benefits may be found in John F. Burton, Jr. and Wayne Vroman, "A Report on Permanent Partial Disabilities under Workers' Compensation," *Research Report of the Interdepartmental Workers' Compensation Task Force*, Vol. 6 (Washington, Government Printing Office, forthcoming).

¹⁴ (Washington, Government Printing Office, 1972).

¹⁵ Laws in effect on January 1, 1980, in 52 jurisdictions (including the District of Columbia and Puerto Rico) were on average in compliance with 12.03 of the 19 essential recommendations of the National Commission, according to information provided in January 1980 by the Division of State Workers' Compensation Standards of the Employment Standards Administration, U.S. Department of Labor. The range among the jurisdictions in 1980 was considerable, with Montana, New Hampshire, and Ohio in compliance with at least 15.5 of the essential recommendations, while Arkansas, Mississippi, and Tennessee were in compliance with 8.5 or fewer of the recommendations.

¹⁶ The assumed relationship between cost increases and improvements in State laws from 1972 to 1978 are being examined in an ongoing study by John F. Burton, Jr.