

# Workmen's Compensation: Measures of Accomplishment

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*Any balanced evaluation of the scope and character of protection afforded by social security programs cannot ignore the important contributions of workmen's compensation. In this country, any historical treatment properly leads off with workmen's compensation as the forerunner of our social insurance provisions. Such evaluations have been severely handicapped, however, by the lack of yardsticks with which to measure the accomplishments of workmen's compensation on a Nation-wide basis. The work done in developing such measures and the results of the analysis are described here.*

**M**ORE than a dozen years ago, the Division of Research and Statistics (then the Bureau of Research and Statistics) undertook to explore the possibility of developing national measurements of the scope of workmen's compensation. Estimates of benefits paid during 1939 and 1940 under each of the State and Federal programs, and a description of the estimating method, were presented in a BULLETIN article in 1942.<sup>1</sup> Since then, annual estimates of benefit payments have been published periodically. Coverage estimates and methodology were first presented in the BULLETIN in 1950, along with other available data on workmen's compensation operations.<sup>2</sup>

The Division has since carried forward on a limited basis its efforts to refine these estimates and to develop further measures of the scope and adequacy of workmen's compensation programs. The present article serves as a compendium of the various measurements and at the same time presents more detailed analysis of the newly available data.

## Description of the Programs

Most of the workmen's compensation programs in the United States

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<sup>1</sup> Michalina M. Libman, "Workmen's Compensation Benefits in the United States, 1939 and 1940," January 1942.

<sup>2</sup> Dorothy McCamman, "Workmen's Compensation: Coverage, Premiums, and Payments," July 1950.

are now about 40 years old. As early as 1908 the Federal Government covered its employees engaged in hazardous jobs. Some 30 States enacted laws in the short period 1911-15. All except six had adopted programs by the end of 1920. After this wave of legislative activity, nearly three decades elapsed—exactly four decades from the date of the first Federal act—before, in 1948, the last of these six States enacted its law.

Workmen's compensation legislation replaces the common-law right of the worker to sue his employer for damages caused by the employer's negligence. This right had proved a dubious one because of the customary common-law defenses available to the employer—assumed risk of the employment, negligence of fellow workers, and the employee's contributory negligence—and because of the uncertainties, cost, and slowness of the court remedy. Compensation programs undertook instead to assure prompt payment of statutory benefits to injured employees and to the dependents of persons killed in industry, regardless of fault or blame, and with costs paid by the employer as part of the expense of production.

Some of the laws adopted by the States were compulsory and some elective. A compulsory statute requires every employer within the scope of the law to accept its provisions and pay the compensation specified. An elective act may be accepted or rejected by the employer, but those who reject it lose the cus-

tomary common-law defenses. In some instances the laws are compulsory with respect to certain employments and elective with respect to others. Most acts permit legally exempt employers to accept voluntarily the coverage of the law. There are about an equal number of compulsory and elective acts, but the coverage of those classified as compulsory is much the greater.

Another essential difference among the States in the framework of their compensation systems is in the organizational method of insuring that compensation will be paid when due. Employers may choose their own private insurance companies except in seven States, where they are required to use the "exclusive" State fund in insuring their risks. Eleven other States have State funds, but these are "competitive" funds and employers choose between insuring with the fund or with a private carrier. Under all but a few acts an employer may qualify as a "self-insurer" by giving proof of ability to carry his own risk.

The acts differ, too, with respect to the comprehensiveness of their coverage provisions. None of the State laws covers all employments. Commonly, the laws exempt employers of agricultural, domestic, and casual labor, as well as other employers who have fewer than a specified number of employees. A number of laws define coverage in terms of hazardous or extrahazardous employment.

## Coverage Estimates

In presenting estimates of the average monthly number of covered workers and the amount of covered payroll for the years 1940, 1946, and 1948, the article in the July 1950 BULLETIN included a detailed description of the estimating method. As background for the new estimates, the estimating procedure is summarized briefly.

The estimates for the benchmark years of 1940 and 1946 were based primarily on payroll data provided by the National Council on Compensation Insurance, the major rate-making organization in the country. For each State, a covered payroll figure was built up consisting of the private-carrier payroll reported to the National Council (adjusted where necessary for incomplete membership of private carriers in the Council); self-insurers' payrolls as reported to the State administrative agency or estimates of these payrolls; and—where relevant—payrolls insured by State funds, as reported to the Council for those competitive State funds that are members and on the basis of data obtained from the States for others.

The covered payroll developed for each State was then translated into an estimate of the number of workers covered in an average month by using the relationship between payrolls and average monthly employment under the State's unemployment insurance program in that year. Use of this conversion method yields a workmen's compensation coverage estimate that is on the same basis as the coverage figure for the unemployment insurance program—that is, the average of the number of workers in covered employment in the pay period of each type (weekly, semi-monthly, etc.) ending nearest the 15th of each month.

The estimates thus obtained were close—both in absolute amounts and in percentage increase over the years—to the coverage of the unemployment insurance programs. This close relationship made it possible to project the workmen's compensation estimates to later years by using the percentage increase under unemployment insurance, with Federal workers treated separately. The projection method was used in developing the 1948 estimates included in the earlier article and for the estimates that have been prepared in the intervening years.

The new estimates also place primary reliance on this projection method. For each State the estimated average monthly number of covered workers in 1946 was projected to 1951, on the basis of the percentage

increase in average monthly employment covered under the unemployment insurance programs, with adjustments where necessary for changes in the coverage provisions of the laws. These estimates were submitted to the respective State workmen's compensation administrative agencies for review and comment. In some instances the State provided additional data or suggestions for improving the estimates. In general, however, the State's reply took the form of approval, sometimes qualified by a statement to the effect that the agency had no way of gauging the coverage of the act it administers but that the estimates looked reasonable.

Because the coverage estimates are not uniformly good from State to State, only the national totals are shown in table 1. Individual State figures have been used, however, to arrive at other measurements included in the analysis below and as a weighting device in connection with the various benefit provisions.

In an average month in 1952, an estimated 38.5–39.5 million workers had protection under the State and Federal workmen's compensation programs. The payroll covered by these programs is estimated at \$135–140 billion for the calendar year. The coverage of workmen's compensation thus extends to almost 4 out of every 5 civilian wage and salary workers and to just above this proportion of civilian wages and salaries. These proportions are slightly higher than those in 1946 and 1948, when it was estimated that three-fourths of the civilian wage and salary workers were covered. Among the reasons for this growth are the addition of Missis-

sippi's program (effective in 1949) and the increasing proportion of workers who are employed in non-agricultural industries, which come within the scope of the compensation acts, and the declining proportion in agricultural employment, which usually is not covered.

The workmen's compensation coverage estimates exceeded the coverage of the State unemployment insurance programs by about 3–4 million workers in an average month in 1952. Public employees at all levels of government—numbering almost 7 million in 1952—are rarely covered by unemployment insurance but usually do have the protection of the workmen's compensation programs. On the other hand, higher numerical exemptions under some of the workmen's compensation laws and the elective nature of many such laws result in the exclusion of some industrial workers who are protected against the risk of unemployment. Obviously, however, the overwhelming majority of the workers are covered by both programs.

Partly for comparability with coverage measurements under other programs, workmen's compensation coverage has been measured in terms of average monthly employment rather than total employment during the year or during any period longer than the pay period. The average employment concept seems especially suitable for a program that ties its protection to employment at a particular time, that protects the worker against injuries while he is on the job but does not build up rights that carry over after he is no longer on the job. There are, however, many millions of persons who are in the labor force and covered by workmen's compensation programs for only brief periods during the year. A coverage measure that reflects these in-and-out workers and relates to employment during the year is used by the Chamber of Commerce, which estimates that "approximately 45,000,000 workers are protected by workmen's compensation in the United States."<sup>3</sup>

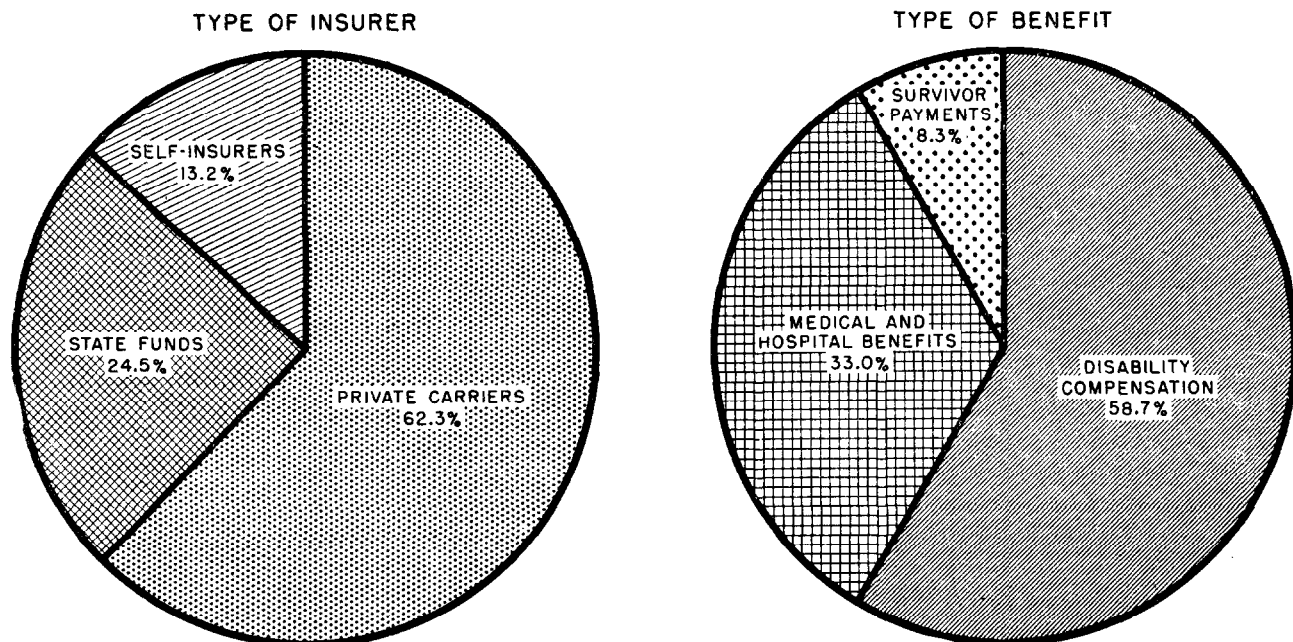
*"Potential" and "applicable" coverage.*—Different concepts of coverage

<sup>3</sup> Chamber of Commerce of the United States, *Analysis of Workmen's Compensation Laws*, January 1954.

Table 1.—*Estimates of annual covered payroll and number of workers covered in an average month, 1940 and 1945–52*

Year	Covered payroll (in billions)	Number of workers covered in an average month (in millions)
1940.....	\$35-36	24-25
1945.....	72-74	31½-32½
1946.....	78-81	32½-33½
1947.....	90-93	34-35
1948.....	100-103	35-36
1949.....	99-102	34-35
1950.....	108-112	35-36
1951.....	125-130	37¾-38¾
1952.....	135-140	38½-39½

Chart 1.—Distribution of workmen's compensation benefits, by type of insurer and by type of benefit payment, 1952



have sometimes been used to measure (a) the number of workers "potentially" coverable under State laws and (b) the number to whom the laws would be "applicable" if all the elections they provide had been made. The first type of measure includes all wage and salary workers except Federal Government employees and railroad workers. The second type of measure makes the further subtractions of agricultural, domestic, and casual workers and other exclusions indicated in the laws. The measurement of applicable coverage makes no allowance for the voluntary acceptance of the law by employers who are legally exempt and—on the other side of the coin—treats as covered those workers whose employers are within the prescribed scope of the act but prefer to reject it and risk a suit for damages (if the act is an elective one) or simply fail to comply (if the act is compulsory).

Bureau of the Census data for April 1950 provide an opportunity to estimate the potential and the applicable coverage for purposes of comparison with the "actual" coverage estimates. Potential coverage under State workmen's compensation laws—that is, all private wage and salary workers (except the interstate railroad workers)

plus State and local government employees—approximated 42.3 million persons in April 1950. For the same month, it is estimated that actual coverage under the State programs was 32–33 million, or about 76–78 percent of the potential coverage.

The ratio of actual to potential coverage varies widely from State to State, depending on the composition of the labor force and on statutory provisions. In three highly urban States with more than one-fifth of the potential coverage, the ratio of actual to potential coverage was 90 percent or more; the laws of these States do not exempt small employers, and in two of the three they are compulsory. The ratio was 85–90 percent in five States with almost another fifth of the potential coverage; all of these States have compulsory laws, and the only rural State among them makes no numerical exceptions.

Of the seven States with ratios of 80–85 percent (containing 13 percent of the potential coverage), six have elective laws, but three of these States, as well as the one State with compulsory coverage, have little farm population; of the three rural States, two make no numerical exemptions. Another fifth of the potential cover-

age was in 13 States with ratios between 65 percent and 80 percent; no highly rural States are in this group, and nine have compulsory laws.

There were 21 States, which together accounted for just over one-quarter of the potential coverage, where the ratio of actual to potential coverage was less than 65 percent. With six exceptions these States have elective laws. The group contains 11 of the Nation's 15 most rural States and has none of the 15 most urban.

It is generally recognized as socially desirable that all wage and salary workers be protected against employment injuries. The usual law does not attempt, however, to cover farm employment, and rurality therefore greatly affects the ratio of actual to potential coverage. A measurement of the effectiveness of a specific law in reaching those workers it is intended to cover—that is, the relative effectiveness of compulsory and elective laws—must consequently be in terms of applicable coverage.

The earlier BULLETIN article compared the findings of Arthur H. Reede<sup>4</sup> as to applicable coverage in 1940 with the Division's estimate of

<sup>4</sup> *Adequacy of Workmen's Compensation*, Harvard University Press, 1947.

Table 2.—*Payments by type of insurance, 1939-52*

[Amounts in thousands]

Year	Total		Type of insurance					
			Insurance losses paid by private insurance carriers <sup>1</sup>		State fund disbursements <sup>2</sup>		Self-insurance payments <sup>3</sup>	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1939	\$234,740	100.0	\$122,183	52.0	\$68,481	29.2	\$44,076	18.8
1940	255,922	100.0	134,653	52.6	72,541	28.3	48,728	19.1
1941	291,009	100.0	159,823	54.9	77,202	26.5	53,984	18.6
1942	328,781	100.0	190,239	57.9	81,247	24.7	57,295	17.4
1943	353,043	100.0	213,123	60.4	80,574	22.8	59,346	16.8
1944	385,619	100.0	236,655	61.4	85,990	22.3	62,974	16.3
1945	408,738	100.0	252,570	61.8	91,255	22.3	64,913	15.9
1946	434,427	100.0	269,799	62.1	96,053	22.1	68,575	15.8
1947	486,175	100.0	301,833	62.1	110,303	22.7	74,039	15.2
1948	534,344	100.0	334,699	62.6	121,048	22.7	78,597	14.7
1949	567,615	100.0	353,140	62.2	131,709	23.2	82,766	14.6
1950	617,283	100.0	381,329	61.8	148,693	24.1	87,261	14.1
1951	710,339	100.0	444,416	62.6	169,963	23.9	95,960	13.5
1952	787,410	100.0	490,793	62.3	192,483	24.5	104,134	13.2

<sup>1</sup> Net cash and medical benefits paid during the calendar year by private insurance carriers under standard workmen's compensation policies. Data from the *Spectator (Premiums and Losses by States of Casually, Surety and Miscellaneous Lines for 1939 through 1949 data; Insurance by States of Fire, Marine, Casually, Surety and Miscellaneous Lines for data since 1949).*

<sup>2</sup> Net cash and medical benefits paid by competitive and exclusive State funds, and the Federal

system for Government employees. Compiled from State reports (published and unpublished) and from the *Spectator* or other insurance publications; data for fiscal years for some funds.

<sup>3</sup> Cash and medical benefits paid by self-insurers, plus the value of medical benefits paid by employers carrying workmen's compensation policies that do not include the standard medical coverage. Estimated from available State data.

actual coverage for the same period. The estimated range of actual coverage under the State laws amounted to 85-89 percent of the Reede estimate, with the ratios tending to be somewhat higher in States with compulsory laws than in those with elective laws.

For a comparable analysis relating to 1950, it was necessary to estimate applicable coverage, using Bureau of the Census data for the base and for the exclusions of such groups as farm and domestic workers, and roughly estimating the effect of numerical exclusions from old-age and survivors insurance data. (No refinements were possible when laws were couched in terms of "hazardous employment" or had special provisions for the coverage of State and local government employees.)

By this rough method, applicable coverage was estimated to be just under 37 million in April 1950. The range of actual coverage for the same month was 87-90 percent. For the States with compulsory laws the actual coverage—the midpoint of the range—amounted to 93 percent of the applicable coverage; in those with elective laws, it was 83 percent. Of the 23 States with laws classified as compulsory, seven had ratios of 95

percent or more, seven ratios were between 85 and 95 percent, and only three were less than 70 percent. For the 26 States with elective laws, the ratio of actual to applicable coverage was more than 95 percent in only four, between 85 percent and 95 percent in six, and less than 70 percent in as many as six.

### Benefit Payments

Compensation payments and medical benefits for injured workers totaled \$787 million during the year 1952 and probably reached \$850 million during 1953. The distribution of these payments is shown in chart 1.

The 1952 total represents a 235-percent increase from 1939, the benchmark year of the benefit series prepared by the Division. During the 14 years the payments made by private carriers have quadrupled, while State fund disbursements have not quite tripled, and self-insurance payments have little more than doubled. As a result of their faster rate of growth, private carriers paid 62 percent of all benefits in 1952 as against 52 percent in 1939 (table 2).

Private carriers had gained this larger share of the total by 1944, and since that year their rate of growth has been somewhat less than the rate

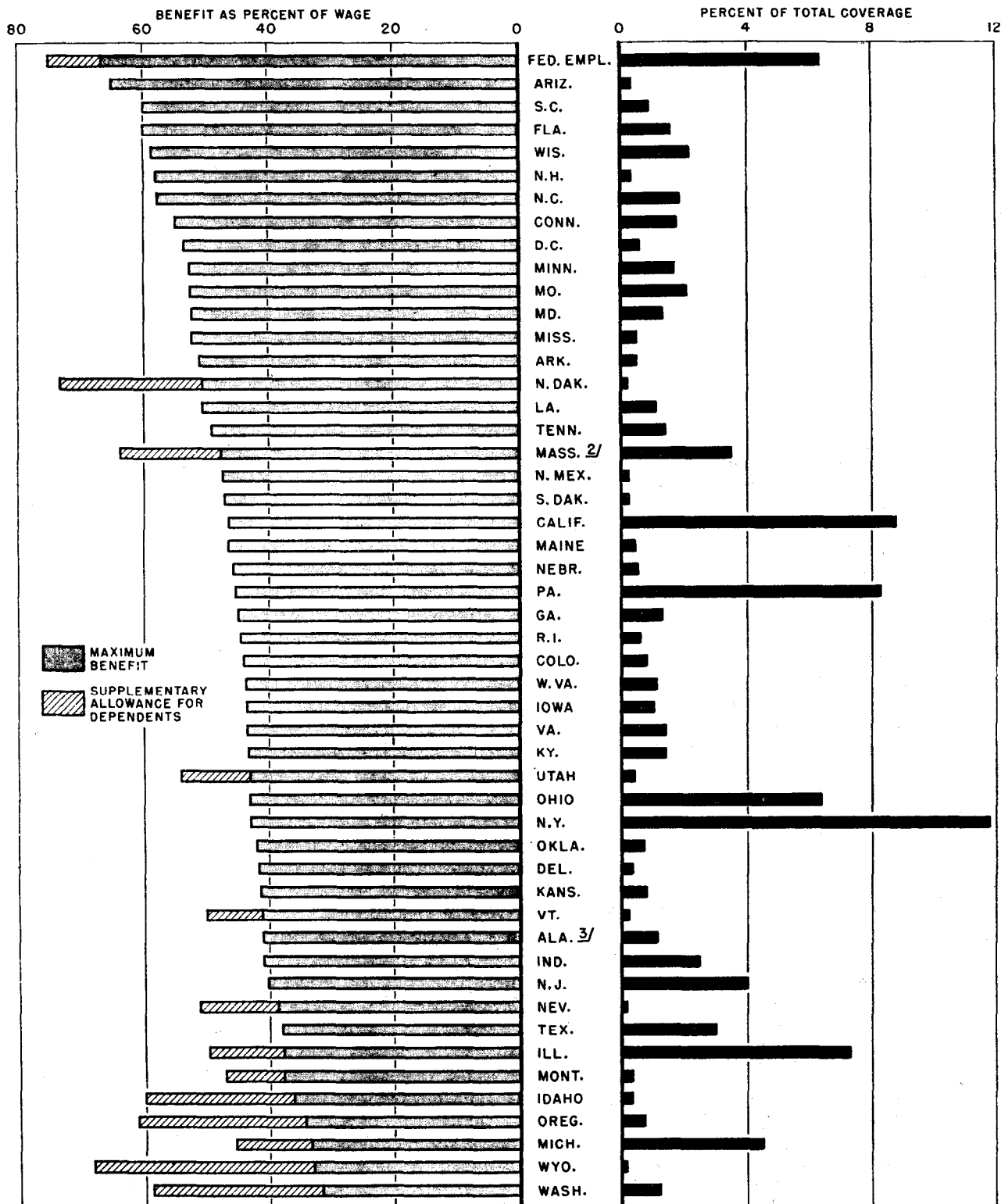
for State funds. Between 1944 and 1952, losses paid by private carriers increased 107 percent and State fund disbursements, 124 percent. Exclusive State funds, together with the system for Federal Government employees, contributed proportionately more of the increase than did competitive State funds.

Of the \$787 million paid in benefits in 1952, one-third went for hospitalization and other medical costs and two-thirds for compensating the wage loss of injured or deceased workmen (table 3). Medical costs had accounted for slightly more than one-third of the total in 1939 but had dropped to about three-tenths during the war. Over the years, compensation paid to the survivors of workers dying from industrial accidents has formed a steadily decreasing proportion of all benefits; from about one-eighth in 1939, it dropped to only one-twelfth in 1952.

*Benefits in relation to payrolls.*—A number of factors combine to account for the growth in workmen's compensation payments—the expanding labor force protected by the programs, the rise in wage rates on which cash benefits are based as well as increasing costs of hospitalization and medical benefits, and statutory liberalizations in the benefits provided. With the exception of the last item these factors are reflected—indirectly in the case of medical costs—in the increase in the payroll covered by workmen's compensation programs. To maintain the same relative effectiveness over a period of years, the growth in benefit payments would have to keep pace with the growth in insured payrolls, unless injuries were to decline in frequency and severity. Actually the rise in benefit payments has lagged far behind that in insured payrolls during the period for which estimates are available. Benefit payments amounted to 0.72 percent of the covered payroll for 1940; by 1945 the ratio had dropped to 0.56 percent, and it continued downward to a low of 0.53 in 1947 and 1948. The proportion was 0.56 during the years 1949-51 and then rose slightly to 0.57 in 1952.

That an improvement in accident rates does not completely explain the lower ratios of benefit payments to in-

Chart 2.—Maximum weekly benefit under workmen's compensation laws for temporary total disability, June 1953, in relation to average weekly wage, 1952, by State<sup>1</sup>



<sup>1</sup> Maximum weekly benefit for worker with and without eligible dependents under laws paying dependents' allowances; average wage for workers covered by State unemployment insurance.

<sup>2</sup> Four dependents assumed.

<sup>3</sup> For workers with average wage, maximum same with or without dependents, though compensation of worker with dependents is based on higher proportion of wages.

sured payrolls is indicated by the Bureau of Labor Statistics series on work injuries in manufacturing. The injury-frequency rate per million employee-hours worked was 15.3 in 1940, somewhat less than the 1951 rate of 15.5 and considerably less than the rates of the war years and immediately thereafter (20.0 in 1943, 18.6 in 1945, 19.9 in 1946, and 18.8 in 1947). The severity of injuries, as measured by the average number of days lost per 1,000 employee-hours worked, has decreased in the last few years but was no lower in 1945 and 1946 than in 1940. On balance, therefore, it appears that the amount paid in benefits to injured workers fell seriously behind the rise in insured wages during the forties.

*Proportion of wage loss compensated.*—Two out of every 3 workers protected by workmen's compensation laws are covered by legislation in which the intent—as measured by the statutory percentage—is to compensate 67 percent or more of the weekly wage during total disability. Only three States, with less than 2 percent of the covered workers, now specify a percentage maximum that is less than 60 percent of wages.

This statutory percentage has sometimes been used as a measure of the proportion of wage loss met by the workmen's compensation programs.<sup>5</sup> Actually the statutory percentage is only one of several factors determining the proportion of wage loss compensated. It is a factor that can rapidly diminish in importance in a period of rising wages.

In the decade 1939-49, the weekly dollar maximum assumed increasing importance in determining the compensation rate. In 1939—when half the laws provided a maximum of less than \$20 a week and \$25 was the highest amount payable under the State laws—these dollar maximums were nevertheless high enough so that they did not nullify the liberality of

<sup>5</sup> During hearings on a 1919 amendment to raise the proportion in the Pennsylvania law from 50 percent to 60 percent, the proposed rate was attacked repeatedly on the ground that it would disturb the existing equal distribution of the loss between the employer and the employee. (E. H. Downey, *Methods of Comparing Compensation Costs*, Bureau of Labor Statistics Bulletin No. 281, 1921, p. 183.)

Table 3.—*Benefits by type, 1939-52*  
(In millions)

Year	Total	Type of benefit			
		Medical and hospitalization payments	Compensation payments		
			Total	Disability	Survivor
1939.....	\$235	\$85	\$150	\$120	\$30
1940.....	256	95	161	129	32
1941.....	291	100	191	157	34
1942.....	329	108	221	185	36
1943.....	353	112	241	203	38
1944.....	386	120	268	228	40
1945.....	409	125	284	242	42
1946.....	434	140	294	250	44
1947.....	486	160	326	280	46
1948.....	534	175	359	309	50
1949.....	568	185	383	331	52
1950.....	617	200	417	362	55
1951.....	710	233	477	417	60
1952.....	787	260	527	462	65

the law with respect to the statutory percentage. In virtually every State, a worker receiving the average weekly wage (as measured by the unemployment insurance program) could receive the proportion of his wage loss specified in the statute.

Ten years later, however, this was the situation in only a few States, even though the maximum dollar amounts had been raised considerably. More than three-fourths of the laws provided maximum weekly benefits (including allowances for dependents) of \$25 or more, with 11 providing a maximum of \$35 or more. Liberalizations between the end of 1949 and the middle of 1953 increased to 20 the total number of laws with maximums of \$35 or more and reduced to two the number providing less than \$25. These higher maximums, however, had still not caught up with rising wages and were high enough in only five States to permit the statutory percentage to be effective for workers with average wages. These five States, which had only 3.3 percent of the covered workers, provided statutory percentages somewhat less than the widely used two-thirds.

To gauge the maximum effective percentage, the maximum dollar benefits payable under the laws in 1949, 1952, and 1953 (or the maximum for a worker without qualified dependents under the 14 acts that now provide supplementary allowances) have been related to the average wage of the preceding year. With the maximums ef-

fective at the middle of 1953, a worker in receipt of the average 1952 wage would have been paid a benefit amounting to less than 50 percent of his wage under more than two-thirds of the laws (chart 2). In 1949 there was only one State, with less than one-half of 1 percent of the covered working population, in which the maximum benefit was less than 35 percent of the average wage; by 1953 the number of such States had increased to four, with 6.5 percent of total coverage.

Six out of 10 covered workers were in States where the maximum benefit both in 1952 and under the liberalizations of 1953 amounted to 40.0-49.9 percent of the preceding year's average wage. As may be seen from the tabulation, however, the concentration of coverage below the 45-percent point was much greater for 1953 maximums in relation to 1952 wages than for 1952 maximums in relation to 1951 wages. The 1953 liberalizations did have the effect of slightly increasing the coverage at 50 percent or more—23 percent for the 1953 maximum as against 21 percent for 1952. In neither year were more than 1 in 10 workers, including Federal workers, covered by laws providing maximums of as much as 60 percent of the average wage.

Maximum as percent of average wage	Number of laws			Percentage distribution of coverage	
	1949	1952	1953	1952	1953
Under 35.....	1	3	4	1.6	6.5
35-39.9.....	8	8	5	17.3	11.0
40-44.9.....	9	12	17	23.2	35.8
45-49.9.....	10	12	8	36.6	23.3
50-54.9.....	6	6	9	7.9	9.8
55-59.9.....	8	5	3	3.2	4.4
60 and over...	8	4	4	10.2	9.2

The weekly wage loss above the effective rate of compensation is not the only cost of industrial injury that the worker is expected to bear. Other costs not met by the workmen's compensation program include the entire wage loss from work injuries of shorter duration than the waiting period and, in States that do not pay compensation retroactively to the date of the injury, the wage loss in the early days of disabilities that last long enough to be compensable. They include also losses beyond the specified maximums

with respect to aggregate payments or duration of payment; at the middle of 1953, only 1 in 4 laws provided for payment of death benefits to the widow for life or until remarriage and to the children until grown, and fewer than half the State laws assured that compensation for permanent total disability would be paid for life or the duration of the disability. Since there are strict limitations on medical benefits in one-third of the laws, the costs falling on the worker may also include some medical or hospitalization expenses unless the insurer voluntarily assumes these costs in order to reduce the period of disability for which compensation is payable.

In the absence of any valid measure of the overall proportion of the cost that workmen's compensation programs are meeting, a simple calculation has been made with respect to the wage loss for an average case of temporary total disability. Restriction of the analysis to this "segment"—a segment accounting for about 95 percent of all cases according to the American Accident Table and the work-injury data of the Bureau of Labor Statistics—reduces the number of assumptions that need be made and bypasses such knotty problems as disability classification and working-life expectancy of serious cases. It must be recognized, however, that a calculation limited to temporary disability cases overstates the proportion of wage loss compensated in all work injuries covered by the workmen's compensation program. The reason is that temporary disability seldom lasts long enough to bring into play the durational or aggregate maximums that curtail payments in death or permanent disability cases, a factor that more than offsets the deduction for the waiting period.

A measure of the program's greater effectiveness in compensating injuries that are of short duration than those that are permanent or result in death is found in Arthur Reede's detailed calculations.<sup>6</sup> His data indicate that, in 1940, the North Carolina law compensated 47.7 percent of the wage loss in temporary disability cases but only 21.4 percent in permanent and fatal cases; in Massachusetts, for the policy

<sup>6</sup> Op. cit., pp. 205-225.

Table 4.—Countrywide experience of stock and mutual companies operating in the State of New York, 1939-52

[In thousands]

Year	Premiums earned	Losses incurred	Loss ratio	Expenses incurred	Expense ratio	Net gain ratio
Stock companies						
1939-52	\$3, 778, 807	\$2, 217, 053	58. 7	\$1, 417, 438	37. 5	3. 8
1939	132, 404	72, 293	54. 6	55, 874	42. 2	3. 2
1940	134, 567	75, 088	55. 8	57, 460	42. 7	1. 5
1941	164, 601	93, 329	56. 7	67, 157	40. 8	2. 5
1942	206, 455	123, 253	59. 7	77, 421	37. 5	2. 8
1943	242, 273	142, 963	59. 0	86, 249	35. 6	5. 4
1944	249, 541	141, 989	56. 9	88, 088	35. 3	7. 8
1945	241, 168	146, 593	60. 8	87, 544	36. 3	2. 9
1946	250, 919	144, 856	57. 7	98, 360	39. 2	3. 1
1947	312, 626	170, 312	54. 5	115, 359	36. 9	8. 6
1948	345, 754	182, 026	52. 6	127, 238	36. 8	10. 6
1949	336, 222	176, 320	52. 4	126, 419	37. 6	10. 0
1950	336, 641	206, 698	61. 4	131, 963	39. 2	- 6
1951	384, 025	257, 268	67. 0	142, 857	37. 2	-4. 2
1952	441, 611	284, 065	64. 3	155, 447	35. 2	. 5
Mutual companies <sup>1</sup>						
1939-52	\$2, 476, 678	\$1, 446, 853	58. 4	\$576, 066	23. 3	18. 3
1939	75, 825	40, 946	54. 0	17, 971	23. 7	22. 3
1940	82, 489	45, 616	55. 3	19, 467	23. 6	21. 1
1941	104, 150	61, 657	59. 2	24, 059	23. 1	17. 7
1942	138, 040	77, 990	56. 5	30, 507	22. 1	21. 4
1943	150, 534	86, 406	57. 4	33, 720	22. 4	20. 2
1944	151, 642	88, 407	58. 3	33, 210	21. 9	19. 8
1945	145, 206	84, 138	57. 9	33, 978	23. 4	18. 7
1946	150, 605	90, 881	60. 3	34, 940	23. 2	16. 5
1947	201, 843	108, 907	54. 0	45, 415	22. 5	23. 5
1948	226, 194	118, 978	52. 6	51, 798	22. 9	24. 5
1949	230, 098	132, 658	57. 7	54, 073	23. 5	18. 8
1950	230, 294	143, 013	62. 1	56, 422	24. 5	13. 4
1951	278, 177	173, 601	62. 4	67, 597	24. 3	13. 3
1952	311, 580	193, 655	62. 2	72, 910	23. 4	14. 4

<sup>1</sup> All figures disregard dividends to policyholders, which, if taken into consideration, result in higher loss ratios and expense ratios; net gain ratio represents ratio before dividends to policyholders.

Source: Compiled from data in the Annual Reports of the New York State Insurance Department and from data in the Annual Casualty-Surety Editions of *The Eastern Underwriter*.

year 1935, the proportion compensated was 54.9 percent for temporarily injured workers and 25.2 percent for the others. More recent measures of this difference are found in the annual reports on work injuries published by Illinois. Of the compensable cases closed for the first time in 1952, the wage loss compensated was estimated at 30 percent for temporary cases but at only 13 percent for permanent-total cases, 14 percent for permanent-partial cases, and less than 6 percent for fatal cases.<sup>7</sup>

The proportion of wage loss compensated in temporary total disability has been calculated for an "average" case in a hypothetical State having a law of "average" liberality. It assumes an average duration of 17 days—the average time lost during 1952 by workers in manufacturing whose injuries resulted in only temporary disability, incapacitating for one full day or more

<sup>7</sup> State of Illinois, Division of Statistics and Research, *Annual Report on Compensable Work Injuries, 1952*, part II, table 9.

but not leaving any permanent ill effects.<sup>8</sup> Assuming further a weekly wage of \$69 (the 1952 rate for the average worker covered by the unemployment insurance program) the wage loss of the injured worker would be \$168.

The law of this hypothetical State provides for a 7-day waiting period and pays compensation retroactively to the date of the injury only if disability lasts as long as 28 days. (Almost four-fifths of the workers covered by the State programs are under laws that specify a 7-day waiting period. The 28-day requirement for retroactive payment is somewhat less general, but about two-thirds of the coverage is in States that require at least 28 days—and some as long as 6 or 7 weeks—and the other third is fairly evenly divided between States with less rigid requirements and those that make no retroactive payments.) This combination of waiting-period

<sup>8</sup> "Work Injuries in the United States," *Monthly Labor Review*, January 1954.

provisions in relation to disabilities lasting an average of 17 days has a discount of almost 25 percent, according to the distribution by duration of temporary total disability cases in the American Accident Table.<sup>9</sup> Hence its effect is to compensate only 75.2 percent, or 12.8 days, of the average 17 days lost.

The weekly rate of compensation for the 12.8 days is estimated generously at \$33. This is the average, weighted by coverage, of the weekly dollar maximums (including dependents' allowances) of the State programs payable after the liberalizations enacted through the middle of 1953. Obviously, use of this average maximum will overstate the effective rate of compensation, not only because the maximum is that for a worker with dependents but because all workers with wages less than \$49.50 (assuming a statutory percentage of two-thirds) will receive less than the weekly dollar maximum. Accurate determination of the effective rate of compensation would require a distribution of wages in relation to a specific combination of benefit provisions—a determination that is theoretically possible and meaningful for a single law but not for this "average" program.

Payment at the rate of \$33 per compensable week would mean that the average temporary total disability case receives a total of \$60.34 for the 12.8 compensable days, or only 36 percent of the estimated wage loss of \$168. Thus it may be concluded that workmen's compensation is probably leaving unmet, on the average, about two-thirds of the wage loss in temporary disability cases and an even greater proportion of the aggregate wage loss from all disabilities of all covered workers, including those fatally or permanently injured. When the entire wage loss of employees not covered by a workmen's compensation program is also considered, it becomes

<sup>9</sup> The table was used by Mr. Reede (op. cit.) in his detailed calculations of the theoretical proportion of wage loss compensated by the laws of North Carolina and Massachusetts. Its use for the present calculations was considered appropriate, since the temporary total disabilities distributed therein have an average duration consistent with 1952's 17-day average.

evident that by far the larger share of the cost of industrial accidents falls on the worker and his family.

### *Costs of Workmen's Compensation*

An individual employer's cost of protecting his workers under the compensation law is determined, to a great extent, by his industrial classification and the hazards of that classification, subject to modification for his experience rating. The premium rate he pays, compared with the premium rate for the same industrial classification in another State, reflects the level of benefits provided by the law of his jurisdiction. His costs will also depend on the method by which he insures his compensation liability—through a private stock or mutual company, through an exclusive or competitive State fund, or through carrying his own risk. In combination, the variables produce an extremely wide range in the percentages of payroll employers spend for this protection.

For employers in the aggregate, however, workmen's compensation costs have been running just under 1 percent of covered payroll in recent years. An estimate of total costs to employers for the calendar years 1949-52 has now been developed by the same method used for 1940 and 1948 costs reported in the earlier article. The cost for employers insured by private carriers is the sum of premiums written by all private carriers as reported by the *Spectator*. A total of premiums paid by employers insured through State funds has been built up from the *Spectator* and State publications, with data reported on a fiscal-year basis converted to calendar-year estimates. The costs for self-insurers have been estimated by adding to their payments for compensation and medical care another 5-10 percent to allow for the administrative costs they pay directly or through taxes to cover the administrative costs of the State agency. The "premium" estimate for the system for Federal Government employees—financed through annual congressional appropriation—consists of the sum of the benefit payments and the administrative costs of the Bureau of Em-

ployees' Compensation, converted to a calendar-year basis.

The total premium figure thus derived amounts to about \$1,010 million for 1949, a slight drop from the 1948 total of \$1,014-1,018 million estimated earlier. Estimated costs again reached the 1948 level during 1950 and continued upward in 1951 to almost \$1,190 million. The 1952 total is estimated at \$1½ billion and consists of \$956 million in private carrier premiums, \$229 million in State fund premiums, \$109-115 million as the cost of self-insuring, and \$41 million for the system for Federal employees.

In relation to covered payroll, total costs to employers dropped from 1.2 percent in 1940 to 1.0 percent in 1948 and 1949, to 0.9 percent in 1950 and 1951, and then rose slightly to just under 1.0 percent for 1952.

In addition to the cost to employers of protecting their workers against employment injuries, mention should be made of the cost paid by State governments in administering the workmen's compensation laws and of supervising the operations of the insurance medium—the private carrier, the self-insurer, and/or the State fund. In five States the laws are administered by the courts, and it is impossible to separate the costs attributable to workmen's compensation from those attributable to other caseloads. In the seven States with exclusive funds and under the system for Federal Government employees, the task of administering the law is generally merged with that of providing insurance protection, so that separate cost figures for the administrative functions are also unattainable. In the other States (including those with competitive State funds), where workmen's compensation laws are administered through State-created commissions, departments, or agencies, data on administrative costs are available for recent years.

In 1950 and 1951, administrative costs in these 36 States and the District of Columbia amounted to \$13.3 million and \$14.2 million, respectively. Not all these amounts, however, represented a cost in addition to that paid by employers. In 19 States, expenses amounting to \$7.9 million and \$8.5 million for the 2 years were



financed through assessments against the insurance mediums and were already reflected in the premium charges of carriers to employers. Only in the 17 States and the District of Columbia, where administrative expenses were financed through appropriations from the general treasury, did administrative expenses—totaling \$5.4 million and \$5.7 million for 1950 and for 1951—represent a cost of workmen's compensation in addition to that charged in premiums.

Financing workmen's compensation costs through assessments rather than legislative appropriations permits State administrative agencies to be self-supporting and self-directing and offers greater assurance that sufficient administrative funds will be available for essential services. The advantage may be illustrated by a comparison of the relative amount of administrative dollars available under the two methods of financing. In 1951, in the States that relied on legislative appropriations, there was allocated for administration \$2.12 for every \$100 of benefits paid, while in the States that relied on assessments the administrative agencies received \$2.88 per \$100 of benefits disbursed.

### *Ratio of Losses to Premiums*

The \$787 million paid out in medical and cash benefits amounted to 59 cents for every dollar of the \$1 $\frac{1}{2}$  billion spent by employers in 1951 to insure their workers. This is a considerably higher rate of return than the 53 percent found earlier for 1948.

The ratio of benefits paid during the year to insurance costs for the same year is subject to considerable misinterpretation. In the first place, the overall ratio conceals very different ratios resulting from differences in the insurance mechanisms. Thus, for self-insurers and the system for Federal Government employees, the ratio is around 95 percent because the cost is figured as payments during the year plus administrative expenses. For participating carriers—primarily mutual companies—and for some State funds, the ratio is lower than it would be were it possible to take dividends into account; that is, the cost included for employers insured by these carriers is overstated insofar

as a portion of their premiums may later be returned in the form of dividends. And for all private carriers and State funds, a loss ratio based on losses paid during the year is lower than one based on losses incurred. This difference is especially great in a period when insured payrolls are rising rapidly; the large amounts of premium income that must be set aside to cover liabilities for future payments may be considerably in excess of amounts paid during the year in cases continued from earlier years when wages and compensation rates were lower.

The relationship of the amount of losses incurred to the premiums earned is the measure commonly used by insurance organizations in evaluating and revising their manual rates. Data needed to determine this ratio are not available in a continuous series going back to 1939 for all private carriers or for State funds. The annual reports of the New York State Insurance Department, however, contain pertinent data on the country-wide business of private carriers operating in the State, representing about 80 percent of all business underwritten for United States employers by insurance companies. From these data the shifts in loss ratios, along with trends in expense ratios and underwriting gains for stock and mutual companies, can be traced for the years 1939–52 (table 4).

Caution must be used in comparing loss and expense ratios, since the mode of operation of stock and mutual companies is different. Nonparticipating stock companies, for example, distribute profits among their stockholders, while the bulk of the profits of mutual companies is returned to policyholders as dividends—representing in essence the difference between the anticipated and actual cost of insurance. If data were available for use in computing the loss and expense ratios of mutual companies based on premium volume less dividend payments, the ratios for these companies would be somewhat higher than those shown in table 4.

Without this adjustment the loss ratios of mutual and stock companies, when averaged for the 14 years, are almost identical. Stock

companies earned \$3.8 billion in premiums and paid to claimants or reserved for future payments \$2.2 billion, for a loss ratio of 58.7 percent; mutual companies earned \$2.5 billion in premiums while incurring losses of \$1.4 billion, for a ratio of 58.4 percent.

Mutual companies, however, because of their dividend privilege and their more selective underwriting, have better protection than stock companies against extreme fluctuations of losses. Their loss ratio varied from 52.6 percent in 1948 to 62.4 percent in 1951, in comparison with a range for stock companies of 52.4 percent in 1949 to 67.0 percent in 1951.

For both stock and mutual companies, loss ratios in the war and early postwar years were relatively low, exceeding 60 percent in only 1 year. In sharp contrast, the loss ratio in every year since 1949 has been more than 60 percent. Rates of the latter magnitude are considered unfavorable by insurance underwriters, especially when superimposed on unfavorable experience in certain other major casualty lines.

Stock companies have generally found the workmen's compensation line less profitable than have the mutual companies. During 1939–52, stock companies earned an underwriting profit of 3.8 percent, while mutual companies averaged an underwriting surplus of 18.3 percent. The underwriting gain of stock companies fluctuated considerably from year to year, ranging from a profit of 10.6 percent in 1948 to a deficit of 4.2 percent in 1951. Mutual companies also showed variation in their underwriting gain, but in no year since 1939 has their surplus dipped below 13.0 percent.

The better financial showing of mutual companies is mainly attributable to their lower expense ratio. In 1939–52, stock companies incurred expenses averaging 37.5 percent of premiums earned, while mutual companies incurred expenses averaging only 23.3 percent of premiums earned. As indicated earlier, however, this difference would be somewhat less if it were possible to make the upward adjustment in the mutual companies' ratios on account of dividends. The

expense ratios of stock companies have shown a gradual decline—from a high of 42.7 percent in 1940 to a low of 35.2 percent in 1952—but still remain considerably higher than the expense ratios of mutual companies, which ranged from 21.9 percent in 1944 to 24.5 percent in 1950.

The disparity in expense ratios is primarily due to the greater acquisition costs of stock companies. Stock companies sell the major proportion of their policies through commissioned agents, while mutuals sell most of their policies direct through salaried employees of the company. In recent years, acquisition costs and field supervision have averaged about 17 percent of premiums earned for stock companies, as against 7 percent for mutuals. Analysis of other items in the "expense loading" shows that mutual companies generally spend proportionately less for everything except inspection and the activities of rating bureaus and other company organizations.

Mutual companies have expanded their compensation business at a faster rate than have stock companies; their premiums earned in 1952 were 311 percent higher than in 1939 in contrast to a 234-percent increase for stock companies. While in 1939 the mutual companies wrote 36 percent of the compensation insurance sold by mutual and stock companies, by 1951 this proportion had risen to 42 percent.

Since competitive State funds spend a very small proportion of premiums for business-getting, and exclusive State funds spend practically nothing at all, it is to be expected that the expense ratios of State funds are lower than those of private carriers. For 1951 the administrative costs (excluding loss adjustment expenses) of all State funds came to 9.0 percent of premiums written—10.9 percent for competitive funds and 6.8 percent for exclusive funds. Recognition, however, should be given to the fact that private carriers include in their premium rates and expense loading certain charges that not all State funds are required to meet—such as taxes, dividend payments, and some administrative costs. In addition, private carriers may provide special consultative services in the field of accident

prevention, rehabilitation, payroll auditing, and merit rating that are often inadequately furnished by State funds.

### *Number of Beneficiaries*

From time to time, the Division of Research and Statistics has worked on developing an estimate of the number of persons drawing workmen's compensation cash payments. For some years now this has been the only major gap in the Division's statistical series on beneficiaries of social insurance and related programs; the bridging of this gap represented a special challenge in that workmen's compensation predates the other forms of social insurance in this country.

In exploring the possibility of obtaining an estimate, attention had been centered on two types of data—statistics published regularly by many States on the number of open cases or cases closed during the year and unpublished data, compiled and made available by the National Council on Compensation Insurance, on awards during the year. The published data were found not usable for the purpose because the States differ greatly in their practices of classification by extent of disability and in their policies with respect to holding cases open. Nor could the Council data, although consistently classified, be readily translated into a count of the number receiving benefits at a given point in the year—the type of measure needed for comparability with beneficiary counts available for other programs.

Some years after these efforts were abandoned, it was decided that an entirely different approach might be worthwhile. Data would be sought from the insurance carrier, which writes and mails the benefit checks and is therefore in a much better position to know how many persons currently receive compensation than is the State administrative agency or the national rate-making organization. Information on the number of cases of the largest carriers—with compensation business spread broadly throughout the country so that State differences in payment levels are properly reflected—could then be projected to a Nationwide estimate on the basis of the relationship of their

premiums or losses to the national total.

Before embarking on the new project, a leading private insurance carrier (the Liberty Mutual Insurance Company) was consulted about the reasonableness of the general approach and asked for advice on specific procedures. The company responded generously, not only with guidance on methods but with the offer to do the necessary sampling of its own records if the project were undertaken. The carrier proposed to work from its regular records of the number of open cases as of the end of each month—records of a type probably kept by most large companies. These open cases include, in addition to cases actually receiving payments, those kept open in anticipation of possible payments to be met in the future. The company would periodically sample its open-case file to determine the percentage of open cases actively receiving indemnity.

Working from these suggestions, the Division sent exploratory letters to the nine largest companies that, together with the carrier already cooperating, wrote almost half of all the 1951 compensation business of private carriers. Data were also requested from the four largest State funds and from the Bureau of Employees' Compensation, which administers the Federal acts.

The response was excellent. The carriers cooperated wholeheartedly in providing estimates obtained by the method suggested, in developing alternative methods suited to other types of record-keeping procedures, in explaining differences in company practice with respect to holding cases open, and in making suggestions—or warning against pitfalls—related to methods of projecting the data of the cooperating carriers to a national total.

Even with all this assistance, the end result of the beneficiary project fell short of the desired goal. It has not been possible to develop a definitive figure for use currently and as a benchmark in the statistical series on social insurance beneficiaries. The project yielded instead a broad range that almost certainly encompasses the true figure but for which no sta-

tistical tests of reliability or significance have been attempted.

It is estimated that, in an average week, the number of injured workmen and of survivor families receiving cash compensation is about 400,000; possibly, however, the number is as low as 340,000 or as high as 470,000. The lower limit is based on the returns of only those cooperating carriers that determined the active indemnity cases by actually sampling their open-case files to obtain a ratio, an average payment per indemnified workday, or whatever measure best suited their record-keeping procedures—plus information for the federally administered acts. The upper end of the range has been placed high enough to include returns from all the cooperating carriers, including those that estimated the ratio without a detailed inspection of their open cases.

For use in projecting the data from the cooperating carriers to a national total, various indexes were available. Among them were data on premiums and losses on both an incurred and paid basis. The alternative methods of projecting the data produced more or less the same total; any slight variations were lost in the broad range resulting from the sharp differences in the reports of the cooperating carriers. Consequently the simplest method was used, and the data were projected on the basis of losses paid during the year, available for self-insurers as well as private carriers and State funds.

Early in the project, it was recognized that there could be considerable variation among the carriers in the ratio of active indemnity cases to total open cases, not only because of differences in policy with respect to holding cases open but also because the open-case count for some companies includes cases receiving medical care only. It had been expected, however, that after these differences were eliminated through application of the ratios or other data provided by the carriers, there would be simi-

arity among the carriers in the relationship between the number of cases actively receiving indemnity payments and such measures as the company's payments on losses during the year or its reserves. Instead the carriers fell into two quite distinct groups. The companies that had sampled their open-case files came out with much lower beneficiary counts in relation to payments and reserves than did those companies that made estimates of the ratio or number without actually drawing a sample or inspecting the open file.

At first glance, this might appear to be a difference due solely to the degree of accuracy of the data prepared for the project.<sup>10</sup> Analysis of published figures on the writings of these carriers on a State-by-State basis, however, indicates a real difference between the two groups—a difference that confirms the direction, although not necessarily the magnitude, of the difference in the special project data. The basic difference lies in the liberality of the laws (as measured by weekly benefit amounts and

<sup>10</sup> A company that did not perform the sampling operation, for example, might have proceeded on the assumption that all open indemnity cases were active and based its ratio on payment activity to total activity; application of this ratio to the open-case count would then yield a figure inflated by inclusion of open cases on which no activity occurred during the month. The extent of this inflationary factor would depend on the company's policy of holding cases open. It would be especially great where the company follows a conservative policy and holds a case open—even though the employee has returned to work—if it appears that the nature of the injury is such that payments may have to be resumed at some future date. For one company with a policy of holding such cases open, data are available to gauge the magnitude of the inflationary factor. The ratio of the company's active cases to the total number open is approximately 54 percent; of those cases involving activity, indemnity payments are made on approximately 52 percent. Thus, in terms of active cases, this company's ratio of cases with indemnity payments is 52 percent, but in terms of open cases the ratio is 28 percent (54 percent times 52 percent).

the duration of payments for death or permanent disability cases) under which the companies write most of their business. The more liberal the law, the greater the losses that must be paid and the reserves that must be accumulated per beneficiary case. The analysis showed that the cooperating carriers with low beneficiary counts in relation to reserves and losses had relatively more of their business in States with the most liberal laws and relatively less in States with the least liberal laws than did the carriers with high beneficiary counts.

There is thus reason to believe that a national count of beneficiaries based only on the data provided by the carriers that sampled their open files and came up with relatively low beneficiary counts would give undue weight to business written in States with liberal laws and by carriers known to be liberal in providing medical care and rehabilitation. On the other hand, a national estimate of beneficiaries based on data provided by all cooperating carriers would give undue weight to those carriers that included in their beneficiary count active but nonpaying cases. It is reasonable to conclude that the true count of beneficiaries lies between the two polar figures—340,000 and 470,000. Analysis of other data, including those of the National Council on Compensation Insurance and the State data used in connection with the earlier efforts to obtain an estimate of the number of beneficiaries, suggests a figure slightly less than 400,000.

This special project to obtain an estimate of the number of beneficiaries drawing cash payments has been described in more detail than is perhaps warranted by its results. The detail is considered necessary as a warning to possible users of the estimate—a *caveat emptor*, as it were. It is hoped, too, that a detailed description in the nature of a progress report may stimulate further attempts to narrow the broad range to a definitive figure.