

*This article summarizes several different methods used to measure the adequacy of wage replacement in state workers' compensation systems in the United States. Empirical research casts serious doubt on benefit adequacy, especially in the case of more serious disabilities.*

*Acknowledgments:* The author chaired the NASI Study Panel that produced the report on which this article is based. Others who authored material in the report included Les Boden, John Burton, Jr., Virginia Reno, Emily Spieler, and the late Terry Thomason. NASI reviewers included Monroe Berkowitz, Jerry Mashaw, and Ed Welch. We also thank Dan Mont, Cecili Thompson Williams, Nelly Ganesan, and Sue Berkebile for administrative support.

## ***Benefit Adequacy in State Workers' Compensation Programs***

*by H. Allan Hunt*

### ***Summary and Introduction***

This article is based on a recent report by the National Academy of Social Insurance (NASI) Study Panel on Benefit Adequacy of the Workers' Compensation Steering Committee, which addresses the issue of wage replacement over the past 25 years in considerable detail.

Three distinct approaches have been employed to measure benefit adequacy in state workers' compensation programs. The earliest, the "statutory benefits" approach, consists of tabulating benefits specified by statute for different injury types. The expected average weekly benefit for temporary total disability relative to the poverty level for a family of four rose from 80 percent of the poverty level in 1972 to 107 percent in 1998. This is progress, but against a very low standard of benefit adequacy.

The second approach used in the NASI study looked at the issue of adequacy by comparing benefits in U.S. jurisdictions with those in the Model Act (Revised)—a statement of "best practice" adopted by the Council of State Governments in 1974. Between 1972 and 1998, the average level of benefits rose from 37 percent to 47 percent of those specified under the Model Act (Revised).

Only one state exceeded benefits, and 12 states had benefits less than 40 percent of those in the act in 1998. Using this standard, one would consider average workers' compensation benefits to be inadequate in nearly all U.S. jurisdictions.

The third method relies on administrative data on workers' compensation wage-replacement benefits received and on estimates of wages lost by compensation claimants. The adequacy of benefits can then be evaluated against the standard of the statutory replacement rate (NASI used two-thirds of gross wages). Expressing the pretax replacement rate as a percentage of wage losses for permanent partial disability cases, 46 percent of the losses were replaced by workers' compensation benefits in New Mexico; 42 percent in Oregon; 41 percent in Washington; 37 percent in California; and 29 percent in Wisconsin. By the two-thirds gross wage-replacement standard, the replacement rates for workers' compensation claims for permanent partial disability are seriously inadequate.

Permanent partial disability benefits, however, represent one of the most contentious areas in workers' compensation programs. Employer advocates argue that two-thirds replacement of gross wage loss is not appropriate for

permanent partial disability claims, since such claims may involve disputes over etiology, disability causation, or even the existence of the disability itself.

The conclusion is that workers' compensation benefits generally appear to be inadequate using the historical standard of two-thirds gross wage replacement. They also appear to be inadequate when compared with provisions of the Model Act (Revised). Additional research is needed to specify which workers and which types of injuries receive inadequate compensation so that policy solutions can be tailored to specific situations.

### ***Workers' Compensation Wage Replacement***

The dominant wage-replacement formula among state workers' compensation programs in the United States is two-thirds of gross earnings (applied in 36 states), generally subject to a maximum and minimum (DOL 2002). Most commonly, the benefit maximum is set at 100 percent of the state average weekly wage, but it ranges up to twice that level. All workers' compensation benefits are tax free, so the value of these benefits in purchasing power is more generous than it appears at first glance. However, the effect of the maximum benefit is to cut replacement rates for those above the maximum earnings level (frequently set at the average wage). Contrarily, the effect of a minimum benefit can be to "overcompensate" low-wage workers in some cases.

The NASI (2004) study took wage-replacement benefits as specified in statute, or as actually paid according to administrative records. The study then measured those benefits against various standards of adequacy.

### ***Approaches to Measuring Adequacy***

Three distinct approaches have been employed to measure benefit adequacy in workers' compensation programs. The original approach was the "statutory benefits" approach, which tabulates benefits as specified by statute for the different injury severities. Thus, benefits for temporary total disability are tabulated and indexed, either against those of other states or against some absolute standard. The NASI Study Panel chose to use the federal poverty standard for a family of four as an absolute yardstick.

The second method is based on the Model Workers' Compensation Act

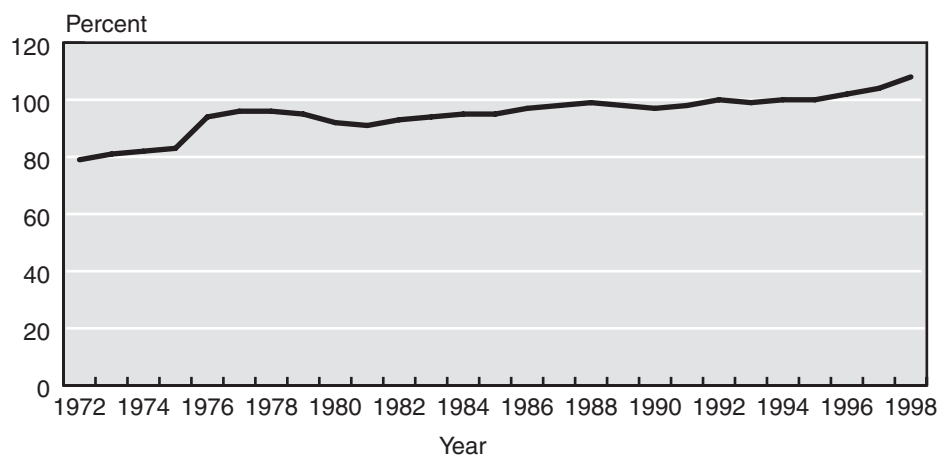
(Revised) adopted by the Council of State Governments in 1974. That act was heavily influenced by the Report of the National Commission on State Workmen's Compensation Laws (1972), which represented a consensus among stakeholders as to desirable changes to workers' compensation programs. The Model Act (Revised) incorporates those recommendations.

The third method is based on the actual wage losses suffered by injured workers. Thus, it relies on empirical data about workers' compensation wage-replacement benefits received and on estimates of the wages lost by compensation claimants. The adequacy of benefits can then be evaluated against the standard of the statutory replacement rate (NASI used two-thirds of gross wages).

### ***Statutory Benefit Approach***

Chart 1 shows the national average expected benefit for temporary total disability relative to the poverty threshold for a family of four. Temporary total claims are the most common wage-loss claims in workers' compensation, accounting for about 68 percent of such claims and 26 percent of wage-loss benefits (Thompson Williams, Reno, and Burton 2003, 8). Average wage-replacement benefits are estimated on the basis of a common distribution of injuries and by incorporating the specific statutory provisions of each state. These state-by-state estimates are then cumulated in a weighted average to represent the national average benefit. Chart 1 indicates that for a family of four, the expected average weekly benefit for temporary total disability rose from 80 percent of the poverty level in 1972 to about 107 percent in 1998. This is certainly progress, but against a very low standard of adequacy.

**Chart 1.**  
**Average weekly temporary total disability benefit relative to the poverty threshold, 1972–1998**



SOURCE: National Academy of Social Insurance, *Adequacy of Earnings Replacement in Workers' Compensation Programs* (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2004), Figure 4-3.

The NASI Study Panel also found that temporary total disability benefits varied widely by jurisdiction. Average weekly wage-replacement benefits relative to the poverty standard for a family of four in 1998 ranged from 16 states with benefits below the poverty line to 11 states with benefits above 120 percent of the poverty line. Only one jurisdiction had benefits of more than 150 percent of the poverty level. Of course, not all injured workers were employed full time at the time of their injury, which would account for some slippage in the average benefit. Still, this is not a good performance against what is considered a very low level of adequacy.

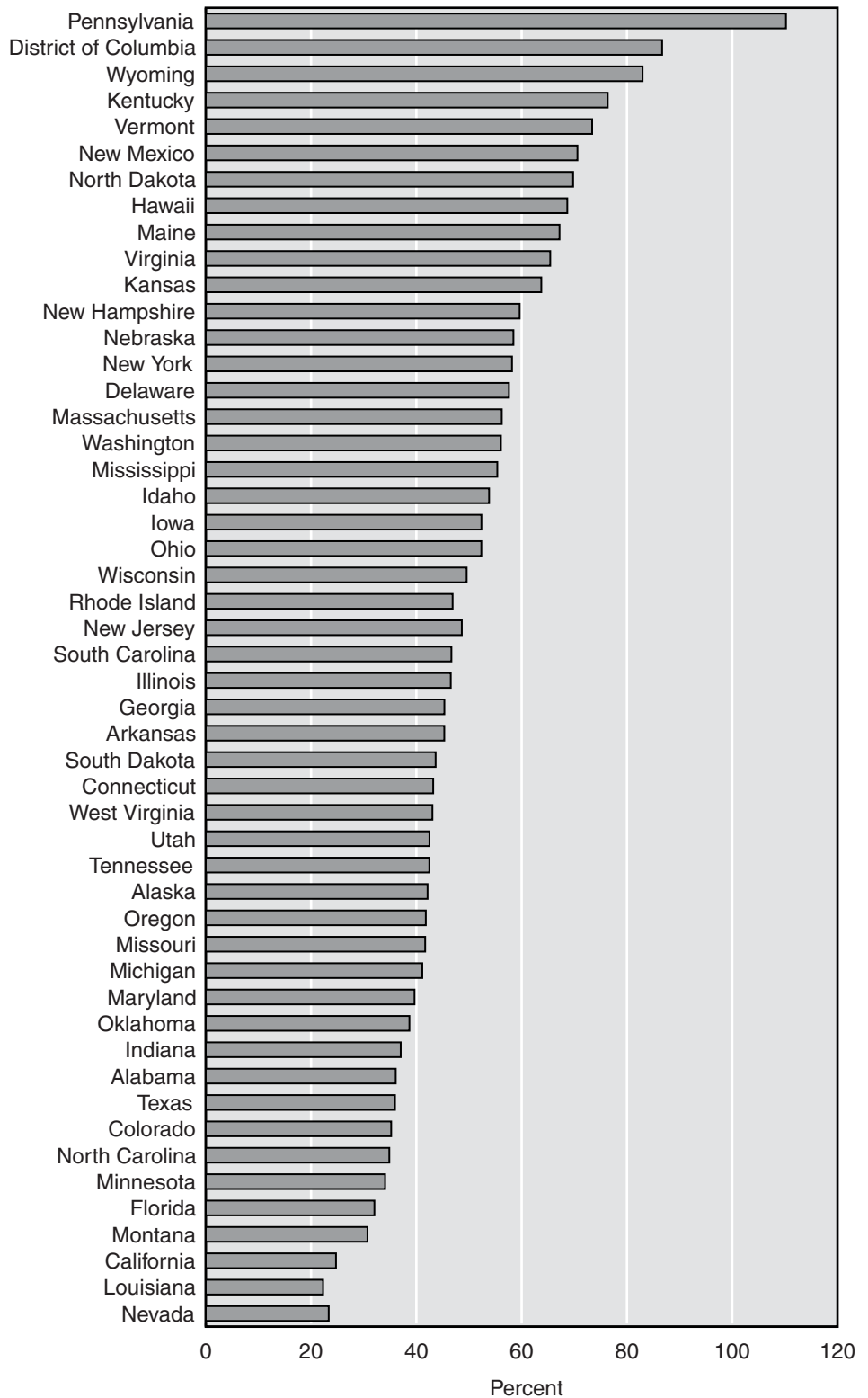
**Model Act Approach**

The second approach used in the NASI study looked at the issue of adequacy by comparing benefits in U.S. jurisdictions with the Model Act (Revised) of the Council of State Governments. The method measures the cost of statutory benefits for a standard distribution of injuries in each workers' compensation jurisdiction (as in the statutory benefits approach). It then estimates the cost of benefits as they would be under the Model Act (Revised) and expresses the state result as a proportion of the Model Act benefit cost. A weighted average of those results across all states yields an average U.S. workers' compensation benefit relative to the Model Act (Revised).

The average level of benefits rose from 37 percent to 47 percent of those specified under the Model Act (Revised) from 1972 to 1998. Most of that increase was in the 1970s, presumably as a result of the National Commission Report, but there has been very little change since then.

Chart 2 reports the ratio of statutory benefits by state relative to the Model Act (Revised) in 1998. Only 1 state exceeded the benefits

**Chart 2.**  
**Expected temporary total disability benefits relative to the Model Act (Revised), by state, 1998**



SOURCE: National Academy of Social Insurance, *Adequacy of Earnings Replacement in Workers' Compensation Programs* (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2004), Figure 4-8.

of the Model Act (Revised), and 12 states had benefits less than 40 percent. Using the Model Act standard, average workers' compensation benefits would be considered inadequate in nearly all U.S. jurisdictions.<sup>1</sup>

Chart 3 breaks down the national comparison with the Model Act (Revised) by severity of injury or type of claim. Over the entire period, temporary total disability benefits rose from about 60 percent of the Model Act (Revised) to nearly 90 percent. This clearly represents a substantial improvement in the adequacy of temporary total disability benefits, assuming one accepts the Model Act (Revised) as a relevant standard.

Permanent partial disability benefits, also shown in Chart 3, are benefits paid for permanent impairments that do not completely prevent work for pay. Such claims account for 31 percent of all wage-loss cases but 63 percent of all wage-loss benefits (Thompson Williams, Reno, and Burton 2003, 8). As a proportion of the Model Act (Revised), average permanent partial disability benefits in workers' compensation systems rose from 43 percent to slightly over 50 percent in the 1970s, and then fluctuated through the years with no discernible trend. Using this standard, permanent partial disability benefits would be considered inadequate. This finding is important because of the additional evidence available from the wage-loss studies that are reviewed later in this article.

Permanent total disability and fatal claims together account for 1 percent of all wage-loss claims and 11 percent of all wage-loss costs (Thompson Williams, Reno, and Burton 2003, 8). The permanent total disability benefits are at the lowest benefit level, at about 20 percent of the benefits specified in the Model Act (Revised) with no discernible trend since the mid-1970s

(Chart 3). Benefits for fatal claims fare somewhat better, rising from 13 percent to 33 percent of Model Act (Revised) levels over the 26-year observation period. Overall, these benefits do not meet the standard of the Model Act.

### Wage-Loss Studies

The third method reviewed by the NASI Study Panel was wage-loss studies. Berkowitz and Burton initiated this line of research back in the 1970s with a National Science Foundation-funded study of permanent partial disability benefits in 10 states. It included the first wage-loss study of workers' compensation benefits in California, Florida, and Wisconsin (Berkowitz and Burton 1987).

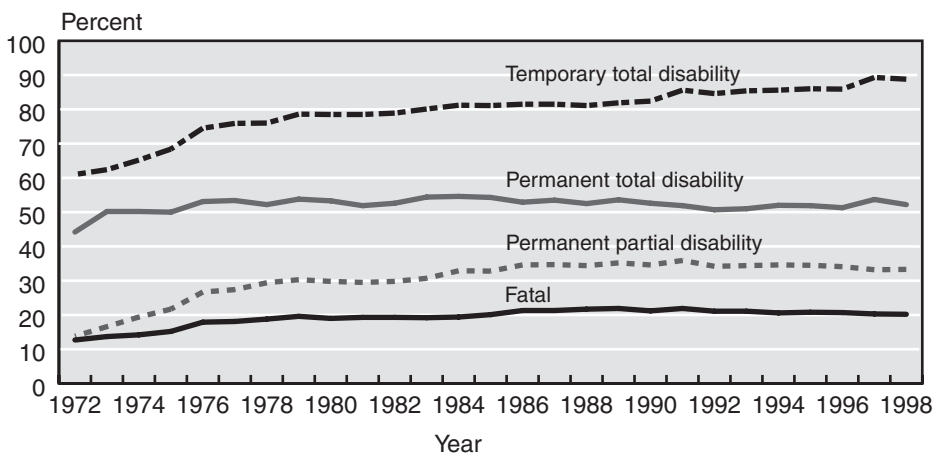
By tracking the earnings of injured workers (from Social Security earnings records) 2 years before and 5 years after a compensable injury and comparing them with workers' compensation benefit payments, Berkowitz and Burton found that workers' compensation benefits replaced an average of 75 percent of lost earnings in Wisconsin, 59 percent in Florida, and 46 percent in California. Wage-replacement rates showed great variation by age, type of injury, and disability rating. There was also a substantial difference in replacement rates between claims that were contested and those that were not.

There are two innovations in the more recent wage-loss studies. One is that these studies use unemployment insurance earnings data to capture the actual earnings of injured workers both before and after the injury. The other is that the studies use comparison group methodologies to estimate the lost earnings of workers after the injury. Berkowitz and Burton (1987) used hypothetical

wage progressions based on age-earnings profiles in California.

The biggest challenge in estimating wage loss is determining what an injured worker would have earned if he or she had not been injured. Robert Reville, in particular, has made this a focus of his studies sponsored by the California Commission on Health and Safety and Workers' Compensation (Peterson and others 1998; Reville and others 2001b; Reville, Schoeni, and Martin 2001). Injured workers were matched to comparison workers with similar earnings at the same firms, and their post-injury earnings were tracked using quarterly unemployment insurance earnings data. Thus, the actual earnings of the comparison workers

**Chart 3.**  
**Expected statutory benefit relative to the Model Act (Revised), by type of benefit, 1972–1998**



SOURCE: National Academy of Social Insurance, *Adequacy of Earnings Replacement in Workers' Compensation Programs* (Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2004), Figure 4-9.



were used to estimate what the earnings of the injured workers would have been in the absence of their injury.

The Boden and Galizzi (1998) study of wage loss in Wisconsin used a slightly different methodology—a multiple regression model to estimate lost wages for injured workers as a function of a set of worker characteristics. This method is not as simple and transparent to policymakers as other methods, but it probably does a better estimation job and is not subject to the criticism that many injured workers go unmatched, especially at smaller firms.

Jeff Biddle of Michigan State University also conducted a wage-loss study in the state of Washington as part of a broader “legislative audit” of workers’ compensation for the Washington Legislative Commission (Biddle 1998). Most recently, data from those studies and the methods used in the different states were drawn together in a study sponsored by the New Mexico Workers’ Compensation Administration. That study compared the wage-loss results for permanent partial disability claims in five states (Reville and others 2001a).

Table 1 shows the findings for 10 years of projected earnings losses, workers’ compensation benefits, and wage-replacement rates for permanent partial disability claimants in five states: New Mexico, Washington, California, Wisconsin, and Oregon. The potential earnings row represents the earnings of the comparison group—the estimate of what injured workers would have earned in the absence of injury. The 10-year losses represent the difference between what injured workers actually earned and what the comparison group earned, projected for 10 years after the year of injury.

Total benefits are the average total workers’ compensation wage-replacement benefits paid to injured workers. The proportional wage loss represents the 10-year losses as a fraction of the potential earnings. For instance, in New Mexico, injured workers on average lost

20 percent of their wages for a 10-year period. Losses were slightly higher in California and Wisconsin and slightly lower in Washington.

Table 1 also shows the pretax replacement rate: workers’ compensation benefits paid as a percentage of wage losses. Workers’ compensation benefits replaced 46 percent of the losses in New Mexico, 42 percent in Oregon, 41 percent in Washington, 37 percent in California, and 29 percent in Wisconsin. By the two-thirds standard gross wage replacement, replacement rates for permanent partial disability compensation claims are clearly very inadequate. Note, however, that benefits for permanent partial disabilities are one of the most contentious areas in the workers’ compensation program. Employer advocates argue that the two-thirds replacement of gross wage loss is not appropriate for such claims, since the claims may involve disputes over etiology, disability causation, or even the existence of disability itself.<sup>2</sup>

Chart 4 shows earnings of the injured workers relative to the comparison group in each of the five states. Earnings are for approximately 3 years before the onset of the injury and 4 years after the injury. Before the injury, earnings tracked very closely in all states except Wisconsin, where injured workers earned the same as the comparison workers. However, in the calendar quarter of the injury, injured workers’ earnings dropped to between 60 percent and 75 percent of those of the comparison worker.<sup>3</sup>

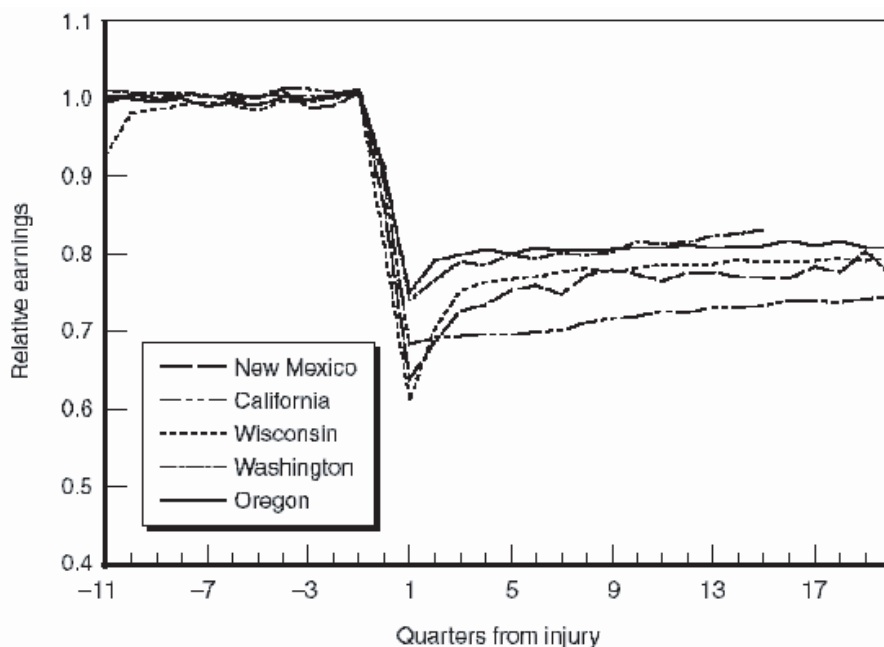
After the injury quarter, earnings of injured workers bounce back—rapidly for two quarters, and then much more slowly. Nineteen quarters (nearly 5 years) following the injury, aggregate earnings are still only 75 percent to 80 percent of those of the comparison group. Even 5 years after the injury, injured workers with permanent partial disability claims in the five states are still suffering wage losses of approximately 20 percent to 25 percent.

**Table 1.**  
**Ten-year earnings losses and replacement rates for permanent partial disability claimants in five states**

	New Mexico	Washington	California	Wisconsin	Oregon
Potential earnings (earnings of comparison group, in dollars)	167,244	250,251	238,262	222,055	197,737
10-year losses (potential earnings minus actual earnings of injured workers, in dollars)	34,314	41,220	61,767	49,477	39,202
Total benefits paid to injured workers (dollars)	15,832	16,734	22,612	14,452	16,636
Proportional wage loss (10-year losses as a percentage of potential earnings)	20	16	25	23	20
Pretax replacement rate (total benefits as a percentage of 10-year losses)	46	41	37	29	42

SOURCE: Robert T. Reville, Leslie I. Boden, Jeffrey E. Biddle, and Christopher Mardesich, *An Evaluation of New Mexico Workers’ Compensation Permanent Partial Disability and Return to Work*, MR-1414-ICJ (Santa Monica, CA: RAND Institute for Civil Justice, 2001).

**Chart 4.**  
**Relative earnings of permanent partial disability claimants as a proportion of earnings of comparison workers in five states**



SOURCE: Robert T. Reville, Leslie I. Boden, Jeffrey E. Biddle, and Christopher Mardesich, *An Evaluation of New Mexico Workers' Compensation Permanent Partial Disability and Return to Work*, MR-1414-ICJ (Santa Monica, CA: RAND Institute for Civil Justice, 2001), p. 48.

Since one could expect that the majority of the workers' compensation benefits would have been paid in the first 3 to 4 years after injury, the result is a mismatch between wages lost and workers' compensation benefits paid, which results in inadequate wage replacement.

### Conclusion

The Study Panel found that wage-loss studies are the preferred method to assess the adequacy of workers' compensation benefits. Comparing the outcomes for injured workers with those of their uninjured counterparts provides a simple and understandable measure. However, more studies from systems with different methods of assessing disability, different benefit formulas, and different legal environments are needed.

In the limited number of states where such studies have been conducted (five to date), wage-replacement rates have been found to be considerably below those stated in the statutes for permanent partial disabilities, which may be viewed as evidence of the inadequacy of wage replacement.<sup>4</sup> However, employer representatives contest the application of the two-thirds gross wage-replacement formula in permanent partial disabilities cases.

There are only two state studies of temporary total disability benefits—the one benefit received by the majority of short-term injured workers. These studies, in Wisconsin and Washington, suggest that the adequacy of workers' compensation wage-replacement benefits declines with the duration of disability. It appears that at least a significant number of extended temporary total disability claimants also experience inadequate wage-replacement benefits (Boden and Galizzi 1999; Biddle 1998). Furthermore, studies of statutory benefits indicate that these benefits have been increasing rather steadily over the past quarter century. More wage-loss studies of temporary total disability benefits are needed to assess the adequacy of the most common wage-loss benefit in workers' compensation.

In addition, the analytical method used in the wage-loss studies completed to date implicitly weights workers' compensation cases by their cost. In other words, more expensive claims count for more than less expensive claims. But is the appropriate question “What proportion of all injured workers' lost wages is replaced?” or is it “What proportion of injured workers receive adequate wage replacement?” The studies completed to date answer the first question (at least for partial disability claims) but do not answer the second.

Nevertheless, the conclusion is that workers' compensation benefits appear to be inadequate using the historical standard of two-thirds gross wage replacement. They also appear to be inadequate when compared with provisions of the Model Act (Revised), a statement of “best practice” adopted by the Council of State Governments in 1974. Additional research is needed to specify which workers and which types of injuries receive inadequate compensation so that policy solutions can be tailored to specific situations. Also, remember that two approaches improve the adequacy of wage-replacement compensation. One involves increasing the level of workers' compensation benefits, but the other involves reducing wage losses. With the latter approach, both injured workers and their employers gain.

## Notes

<sup>1</sup> Thomason and Burton performed a similar study for the Canadian jurisdictions of Ontario and British Columbia. They found that workers' compensation benefits in those provinces exceeded the level of the Model Act (Revised) by a wide margin (see Thomason and Burton 2001). So it seems that this benefit level is not an unattainable standard.

<sup>2</sup> See Barth and Niss (1999) and Barth, Helvacian, and Liu (2002) for more information on current practices in compensating permanent partial disabilities.

<sup>3</sup> This reflects the duration of disability, as well as the severity of injury. The average duration of disability payments for claims with at least 7 lost work days is estimated at 80 days, or 16 weeks, for 12 states in the CompScope™ study (Telles, Laszlo, and Liu 2003, 62).

<sup>4</sup> This statement may be slightly unfair. Although four of the five states use two-thirds gross replacement, California and Wisconsin also specify low maximum weekly benefits for permanent partial disability. Washington has a unique system for disability compensation determination that is not based on preinjury earnings. See Barth and Niss (1999) for a full discussion.

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