riod until final separation, but reducing the loss amounts by the overall percentage of interim separations in that period. I have calculated such percentage adjustments for men and women from the tables in the March 1982 and April 1983 articles, and these appear in table 1. (I would caution economists dealing in post-tax calculations that using simple percentage adjustments may complicate that process.) These numbers are also for all individuals, whether or not they are in the labor force.

The table reveals the magnitude of earning years overestimates that would be caused by using the unadjusted period until final separation. The columns headed "Percent difference" show the percentage of the time until final separation during which an individual would not be in the labor force. These numbers can be interpreted as the necessary reductions in economic loss if an individual's worklife endured the entire period until final separation, and separations were spread evenly across the period. Though there are dramatic differences for both sexes, the differences for women are uniformly of large magnitude.

For example, a man age 30 with an annual income capacity of $25,000 (using a current market discount rate of 11 percent and an annual income increase of 4.5 percent) under the 31.5-year final separation criterion has a present value of future income equal to $341,857; under the 29.2 years of remaining worklife criterion, $332,914; and under the 7.3 percentage reduction criterion, $316,901. A woman age 30 has a 31.4-year final separation present value of $341,493; a 19.9-year worklife present value of $280,966; and a 36.6 percentage reduction present value of $216,506. □

FOOTNOTES

[1] David M. Nelson, "The use of worklife tables in estimates of lost earning capacity," *Monthly Labor Review*, April 1983, pp. 30–31, and Shirley J. Smith "New worklife estimates reflect changing profile of the labor force," *Monthly Labor Review*, March 1982, pp. 15–20.

Using the appropriate worklife estimate in court proceedings

SHIRLEY J. SMITH

The comments of Nelson and Boudreaux are representative of others we have received from expert witnesses involved in liability proceedings, where the Bureau of Labor Statistics' working life tables play an important role. Their differing viewpoints illustrate an important problem in worklife estimation: At present there is no universally acceptable procedure for determining lost earnings. Courts in various jurisdictions are accustomed to viewing the issues differently, and require that claims brought before them be stated accordingly. For instance, some disputes center on the number of years the claimant would have been in the labor force over a lifetime.[1] In such cases, worklife estimates must be discounted for periods of midlife inactivity, and the possibility of premature death. The concepts represented in the BLS tables for 1977 fully satisfy these data needs. Other courts narrow the issue simplistically by assuming that the claimant would have lived out his or her life expectancy, had it not been for the event which brought about the lawsuit. In such trials, the expert witness must quantify worklife duration assuming a zero probability of death. (Witnesses involved in these trials frequently complain that the BLS tables force them to "double count" mortality.) Another court-imposed viewpoint is that compensation, when warranted, must be awarded for the entire period of "earnings capacity," whether or not the claimant would have been continuously employed. If the issue is stated in these terms, the expert witness must identify the claimant's probable age at final retirement. Nelson's tables relate to this issue.[2]

Boudreaux correctly observes that this last approach may compensate the claimant for (often very long) periods of economic inactivity. Some courts feel that this is appropriate, because the injured party has been deprived of the option to work. Others define it as "overcompensation." Boudreaux's tables illustrate the magnitude of the difference which follows from court-imposed perspectives.

Frequently, economists want to look past the lifetime-worklife expectancy figure to study the timing of the potential earnings stream. When inflation and discounting factors are introduced, timing can make a sizable difference in the final estimate of earnings lost.[3] Boudreaux's tables allow the analyst to distribute years of activity over the entire period until final retirement, by assuming that inactivity would be evenly spread over the interval. This is a useful refinement of the figures presented in the tables of working life for 1977. However, it brings to mind an even more useful measure, one which can be computed by single year of age from the published tables.

The issue Boudreaux and many other witnesses wish to focus on is precisely *when* the claimant would have been active, and to what degree. Lifetime worklife expectancies are in fact the summation of yearly expectancies for successive ages. The age-specific expectancies are implicit in the tables, but are not explicitly displayed. It is possible to determine them from the life table functions of "stationary population living at exact age x," and "person years lived" and "person years of activity lived" within the given age:

$$l_x, \quad L_x, \text{ and } \overset{a}{L}_x.$$

The formula used will depend on whether the figures are expected to take account of the possibility of death, or

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whether the claimant is assumed to survive until final retirement. When the ongoing possibility of death is assumed, the individual's "worklife expectancy during age x" is simply:

$$(1) \qquad {}_{x+1}e^{a}_{x} = \frac{L^{a}_{x+1\ x}}{l_x}$$

In words, it is the average time spent active during the age, for all persons alive at the beginning of that age. If it has been assumed that the claimant would survive to final retirement and therefore not die during age x), the corresponding formula would be:

$$(2) \qquad {}_{x+1}e^{a}_{x} = \frac{L^{a}_{x+1\ x}}{L_x}$$

or the proportion of all person-years lived in that age which are lived in the active state.

Persons using the tables for these computations should bear in mind two important limitations to the data. The first is that the tables deal with years of labor force involvement, and not just periods of employment. The second is that they make no allowance for differences in work schedules (as between part-time, full-time, and overtime work). Thus, these refinements expose the distribution of workyears over a lifetime which is implicit in the basic tables. They improve the age precision of the data, but do not tighten it with respect to "time on the job."

Estimates (1) and (2) are computed for the population as a whole. They do not zero in on probabilities of participation by current activity status. Such estimates can be derived from status-specific tables like that for persons age 16, shown in BLS Bulletin 2135. However, they cannot be obtained without a substantial amount of untabulated data.

Subsequent publications of worklife estimates may include some of these alternate functions, because the data needs of readers seem to vary quite widely with court-imposed restrictions. □

FOOTNOTES

[1] This is the question typically addressed in working life tables. Future tables may look more closely at the question of years of employment.

[2] See David M. Nelson, "The use of worklife tables in estimates of lost earning capacity," *Monthly Labor Review*, April 1983, pp. 30–31.

[3] The use of inflation and discounting factors is by no means universal.