



## A further adjustment needed to estimate lost earning capacity

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In the April 1983 issue of the *Monthly Labor Review*, David M. Nelson argued that the worklife tables published in the March 1982 issue are inappropriate for the calculations performed by economists in forming opinions about individuals' lost earning capacities.<sup>1</sup> His view is that "earning capacity" is time-determined by the period until final separation of the individual from the labor force. It is difficult to argue with this assertion. However, the implication that an individual should receive lost income compensation for that entire period could lead to severe errors in such calculations.

The new increment-decrement tables (detailed in the 1982 issue) include the allowance for interim periods of separation from the labor force. During those periods, because individuals would not be earning income, compensation from that source is not required. Using the tables produced in the April 1983 communication would erroneously provide this compensation, if unadjusted.

Adjusting for the periods of separation from the labor force can be performed in a number of ways. The March 1982 tables for worklife, if used in economic loss calculations, effectively adjust by forcing an assumption that all such separations occur at the end of the worklife. This assumption is likely to result in an overestimate of the loss to an individual because such separations are not generally clustered at the end of worklife, and the discounting processes used would thereby underestimate the effect of separations which were more evenly distributed across the time until final separation. Nevertheless, this process is likely to be the one embraced by economists because it is easy to calculate. Even with its bias, use of these increment-decrement tables for earning loss calculations is obviously far superior to ignoring separations altogether, as would be done in using the unadjusted period to final separation.

Without much difficulty, economists can perform a somewhat more sophisticated adjustment by using the entire pe-

**Table 1. Differences between worklife and years to final separation from the labor force, by sex and age, 1977**

Age	Men			Women		
	Years of remaining worklife	Median years until final separation	Percent difference	Years of remaining worklife	Median years until final separation	Percent difference
24	34.2	37.5	8.8	23.6	37.0	36.2
25	33.4	36.5	8.5	23.0	36.0	36.1
26	32.6	35.5	8.2	22.3	35.1	36.5
27	31.8	34.5	7.8	21.7	34.1	36.4
28	30.9	33.5	7.8	21.1	33.2	36.5
29	30.1	32.5	7.4	20.5	32.3	36.5
30	29.2	31.5	7.3	19.9	31.4	36.6
31	28.3	30.5	7.2	19.3	30.4	36.5
32	27.4	29.5	7.1	18.7	29.4	36.4
33	26.5	28.5	7.0	18.1	28.3	36.0
34	25.6	27.5	6.9	17.5	27.2	35.7
35	24.7	26.5	6.8	16.8	26.1	35.6
36	23.8	25.5	6.7	16.2	25.1	35.5
37	22.9	24.6	6.9	15.6	24.1	35.3
38	22.0	23.6	6.8	14.9	23.1	35.5
39	21.2	22.6	6.2	14.3	22.1	35.3
40	20.3	21.6	6.0	13.7	21.1	35.1
41	19.4	20.7	5.8	13.0	20.1	35.3
42	18.5	19.9	6.1	12.4	19.1	35.1
43	17.6	18.7	5.9	11.8	18.1	34.8
44	16.8	17.8	5.6	11.2	17.1	34.5
45	15.9	16.8	5.4	10.5	16.2	35.2
46	15.0	15.9	5.7	9.9	15.3	35.3
47	14.2	14.9	4.7	9.3	14.4	35.4
48	13.3	14.0	5.0	8.7	13.5	35.6
49	12.5	13.1	4.6	8.1	12.6	35.7
50	11.7	12.2	4.1	7.5	11.8	36.4
51	10.9	11.3	3.5	7.0	10.9	35.8
52	10.1	10.4	2.9	6.4	10.1	36.6
53	9.3	9.6	3.1	5.9	9.8	39.8
54	8.5	8.7	2.3	5.3	8.5	37.7
55	7.8	7.9	1.3	4.8	7.7	37.7
56	7.0	7.1	1.4	4.3	6.9	37.7
57	6.3	6.3	0.0	3.8	6.1	37.7
58	5.6	5.5	-1.8	3.4	5.5	38.2
59	4.9	4.8	-2.1	2.9	4.1	29.3
60	4.3	4.2	-2.4	2.5	4.0	37.5
61	3.7	3.7	0.0	2.2	3.9	43.6
62	3.1	3.5	11.4	1.8	3.6	50.0
63	2.7	3.2	15.6	1.5	3.6	58.3
64	2.3	3.0	23.3	1.3	3.5	62.9
65	1.9	3.1	38.7	1.1	3.6	69.4
66	1.6	3.3	51.5	0.9	3.8	76.3
67	1.4	3.5	60.0	0.8	3.9	79.5
68	1.2	3.7	67.6	0.6	4.0	85.0
69	1.1	3.9	71.8	0.5	4.1	87.8
70	0.9	4.0	77.5	0.5	4.0	87.5
71	0.8	4.0	80.0	0.4	4.0	90.0

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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—

<sup>1</sup>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

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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.<sup>1</sup> 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.<sup>2</sup>

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.<sup>3</sup> 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:

$$l_x, \quad L_x, \quad \text{and} \quad L_x^a$$

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

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