

## 7 SPECIAL CASES

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### 7.1 Introduction

In Chapter 3, the techniques of estimating lost earning capacity in wages were discussed in general, and the case of a deceased or severely injured white male was used as an example. Techniques and issues pertaining to the estimation of additional economic losses in fringe benefits, household services, and medical costs were then presented.

This chapter deals with individual cases in which special issues arise, either

because of the characteristics of the deceased or injured person or because of the nature of his or her occupation. In the former category are females and minor children, for example. In the latter category are executives and entrepreneurs.

## 7.2 Females

### A. General

The basic techniques of estimating lost earning capacity do not vary on the basis of whether the deceased or injured party is male or female. The economic expert is concerned in either case about rates of wage growth, discount rates, and employee contributions to fringe benefits, for example. Yet, a pattern of differences does exist for women as a group in three areas:

1. Labor force attachment
2. Earnings patterns
3. Non-market services

Each may be important as lost earning capacity is estimated.

### B. Labor Force Attachment and Earnings Patterns

Let us forget, for a moment, the wage rate that an average female earns when working. The more basic issue is the probability that she will actually be alive, participating in the work force, and employed at any time. If not employed, the wage rate which she could earn isn't important. Thus, in Chapter 3, we introduced the "Probability LPE" technique of adjusting loss estimates in each year for work-life expectancy. The "special" issue for females as a group is that their LPE probabilities are significantly below those of males as a group.

Table 1 assumes the death of a 25-year-old person and contrasts the Life (L) probability, the Participation (P) probability, the Employment (E) probability, and the Joint LPE probability of a white male, black male, white female, and black female. Examining each of the three variables, life rates are higher for females than males. A 25-year-old average white female, for example, will live to age 80.0, while an average white male aged 25 will live to age 73.8.<sup>1</sup> One implication is that average females have a longer power to earn income than do males, whether or not they choose to exercise that power. Another is that where retirement income may be lost for a deceased, the average female will lose it for a longer period.

Yet, the very significant difference is in the participation probability at any age. It is lower for females. This makes the joint LPE probability lower for average females and, all other things being the same, lowers earning capacity estimate for females compared to males. Interestingly, employment rates for those trying to find jobs (participating) are not very different for females than for males.

It is, again, the "P" that makes the difference. Why do women participate in the work force—try to find jobs—at a lower rate than do men? One reason may be continuing belief by some U.S. sub-cultures that men should work and women should be homemakers. Another reason is that women may not participate in child-bearing time and may choose not to participate in child-rearing years. Whatever

<sup>1</sup> U.S. Department of Commerce, STATISTICAL ABSTRACT OF THE UNITED STATES 1989 (Washington, D.C.: U.S. Government Printing Office, 1985), p. 73.

**TABLE 1**  
**LIFE, PARTICIPATION, AND EMPLOYMENT PROBABILITIES**  
**BY AGE, RACE, AND SEX\***

Age	White Males			
	Life (L) Rate	Participation (P) Rate	Employment (E) Rate	Joint Probabilities (LPE)
25	.98404	.948	.9467	.8832
26	.98251	.948	.9467	.8818
27	.98101	.948	.9467	.8805
28	.97948	.948	.9467	.8791
29	.97789	.948	.9467	.8777
30	.97624	.957	.9493	.8869
31	.97452	.957	.9493	.8853
32	.97275	.957	.9493	.8837
33	.97093	.957	.9493	.8820
34	.96908	.957	.9493	.8804
35	.96719	.957	.9632	.8916
36	.96524	.957	.9632	.8898
37	.96320	.957	.9632	.8879
38	.96106	.957	.9632	.8859
39	.95879	.957	.9632	.8838
40	.95635	.951	.9640	.8767
41	.95374	.951	.9640	.8744
42	.95093	.951	.9640	.8718
43	.94790	.951	.9640	.8690
44	.94465	.951	.9640	.8660
45	.94114	.938	.9657	.8490
46	.93733	.938	.9657	.8490
47	.93316	.938	.9657	.8453
48	.92859	.938	.9657	.8411
49	.92356	.938	.9657	.8366
50	.91802	.894	.9657	.7925
51	.91192	.894	.9657	.7873
52	.90522	.894	.9657	.7815
53	.89785	.894	.9657	.7751
54	.88976	.894	.9657	.7682
55	.88092	.806	.9647	.6849
56	.87128	.806	.9647	.6775
57	.86077	.806	.9647	.6693
58	.84932	.806	.9647	.6604
59	.83688	.806	.9647	.6507
60	.82337	.549	.9650	.4362
61	.80880	.549	.9650	.4285
62	.79318	.549	.9650	.4202
63	.77659	.549	.9650	.4114
64	.75906	.549	.9650	.4021
65	.74063	.263	.9670	.1884
66	.72064	.263	.9670	.1833
67	.69924	.263	.9670	.1778
68	.67658	.263	.9670	.1721
69	.65283	.263	.9670	.1660

\*Life rates for each age are the probability that a person would live to that age and through the age. Participation rates are based upon the last reported year (1988). Employment rates are based upon 19-year averages (1970-88) for whites and 17-year averages (1972-88) for blacks, which cover the only years for which data are available.

TABLE 1—(Continued)

Age	White Females			
	Life (L) Rate	Participation (P) Rate	Employment (E) Rate	Joint Probabilities (LPE)
25	.99447	.741	.9369	.6904
26	.99395	.741	.9369	.6901
27	.99341	.741	.9369	.6897
28	.99286	.741	.9369	.6893
29	.99230	.741	.9369	.6889
30	.99170	.719	.9385	.6692
31	.99108	.719	.9385	.6687
32	.99041	.719	.9385	.6683
33	.98971	.719	.9385	.6678
34	.98897	.719	.9385	.6673
35	.98819	.743	.9506	.6980
36	.98735	.743	.9506	.6974
37	.98643	.743	.9506	.6967
38	.98541	.743	.9506	.6960
39	.98429	.743	.9506	.6952
40	.98304	.756	.9518	.7074
41	.98164	.756	.9518	.7064
42	.98010	.756	.9518	.7053
43	.97843	.756	.9518	.7041
44	.97661	.756	.9518	.7028
45	.97462	.730	.9572	.6810
46	.97246	.730	.9572	.6795
47	.97008	.730	.9572	.6779
48	.96744	.730	.9572	.6760
49	.96450	.730	.9572	.6740
50	.96123	.648	.9582	.5968
51	.95760	.648	.9582	.5946
52	.95363	.648	.9582	.5921
53	.94931	.648	.9582	.5894
54	.94463	.648	.9582	.5865
55	.93958	.535	.9634	.4843
56	.93410	.535	.9634	.4815
57	.92813	.535	.9634	.4784
58	.92157	.535	.9634	.4750
59	.91433	.339	.9642	.4713
60	.90638	.339	.9642	.2963
61	.89767	.339	.9642	.2934
62	.88822	.339	.9642	.2903
63	.87804	.339	.9642	.2870
64	.86715	.339	.9642	.2834
65	.85552	.151	.9638	.1245
66	.84277	.151	.9638	.1227
67	.82894	.151	.9638	.1206
68	.81408	.151	.9638	.1185
69	.79827	.151	.9638	.1162

TABLE 1—(Continued)

Age	Black Males			
	Life (L) Rate	Participation (P) Rate	Employment (E) Rate	Joint Probabilities (LPE)
25	.97803	.887	.8731	.7574
26	.97498	.887	.8731	.7551
27	.97178	.887	.8731	.7526
28	.96840	.887	.8731	.7500
29	.96480	.887	.8731	.7472
30	.96096	.900	.8798	.7609
31	.95689	.900	.8798	.7577
32	.95259	.900	.8798	.7543
33	.94807	.900	.8798	.7507
34	.94333	.900	.8798	.7470
35	.93836	.890	.9160	.7650
36	.93315	.890	.9160	.7607
37	.92766	.890	.9160	.7563
38	.92187	.890	.9160	.7515
39	.91574	.890	.9160	.7465
40	.90922	.870	.9220	.7293
41	.90233	.870	.9220	.7238
42	.89510	.870	.9220	.7180
43	.88758	.870	.9220	.7120
44	.87981	.870	.9220	.7057
45	.87180	.864	.9315	.7017
46	.86350	.864	.9315	.6950
47	.85477	.864	.9315	.6880
48	.84544	.864	.9315	.6804
49	.83537	.864	.9315	.6723
50	.82449	.802	.9315	.6159
51	.81280	.802	.9315	.6072
52	.80041	.802	.9315	.5979
53	.78743	.802	.9315	.5882
54	.77398	.802	.9315	.5782
55	.76008	.688	.9352	.4891
56	.74567	.688	.9352	.4798
57	.73058	.688	.9352	.4701
58	.71455	.688	.9352	.4598
59	.69742	.688	.9352	.4488
60	.67912	.492	.9362	.3128
61	.65974	.492	.9362	.3039
62	.63950	.492	.9362	.2946
63	.61870	.492	.9362	.2850
64	.59759	.492	.9362	.2752
65	.57626	.204	.9275	.1090
66	.55413	.204	.9275	.1049
67	.53135	.204	.9275	.1005
68	.50806	.204	.9275	.0961
69	.48442	.204	.9275	.0917

TABLE 1—(Concluded)

Age	Black Females			
	Life (L) Rate	Participation (P) Rate	Employment (E) Rate	Joint Probabilities (LPE)
25	.99262	.727	.8586	.6196
26	.99156	.727	.8586	.6190
27	.99040	.727	.8586	.6182
28	.98913	.727	.8586	.6175
29	.98775	.727	.8586	.6166
30	.98622	.747	.8708	.6415
31	.98455	.747	.8708	.6405
32	.98276	.747	.8708	.6393
33	.98088	.747	.8708	.6381
34	.97893	.747	.8708	.6368
35	.97690	.776	.9126	.6919
36	.97478	.776	.9126	.6904
37	.97252	.776	.9126	.6888
38	.97006	.776	.9126	.6870
39	.96736	.776	.9126	.6851
40	.96437	.788	.9193	.6986
41	.96109	.788	.9193	.6962
42	.95755	.788	.9193	.6937
43	.95378	.788	.9193	.6909
44	.94979	.788	.9193	.6880
45	.94559	.709	.9345	.6265
46	.94114	.709	.9345	.6235
47	.93636	.709	.9345	.6204
48	.93115	.709	.9345	.6169
49	.92544	.709	.9345	.6131
50	.91916	.653	.9385	.5633
51	.91231	.653	.9385	.5591
52	.90494	.653	.9385	.5546
53	.89711	.653	.9385	.5498
54	.88887	.653	.9385	.5447
55	.88025	.529	.9489	.4418
56	.87117	.529	.9489	.4373
57	.86144	.529	.9489	.4324
58	.85080	.529	.9489	.4271
59	.83908	.529	.9489	.4212
60	.82617	.332	.9531	.2614
61	.81213	.332	.9531	.2570
62	.79719	.332	.9531	.2522
63	.78165	.332	.9531	.2473
64	.76574	.175	.9531	.2423
65	.74955	.175	.9579	.1257
66	.73239	.175	.9579	.1228
67	.71435	.175	.9579	.1198
68	.69551	.175	.9579	.1166
69	.67596	.175	.9579	.1133

SOURCES: For life rates, Bureau of Census, U.S. Department of Commerce, STATISTICAL ABSTRACT OF THE UNITED STATES 1989 (Washington, D.C.: U.S. Government Printing Office, 1989), p. 73. For participation and employment rates, Bureau of Labor Statistics, U.S. Department of Labor, HANDBOOK OF LABOR STATISTICS 1985 (Washington, D.C.: U.S. Government Printing Office, 1985), pp. 20-21 and 71-73 for years 1970-83, and annual editions of EMPLOYMENT AND EARNINGS, January 1985-89, for years 1984-88.

the reason, the problem for economic loss estimation does not stop with the fact that the participation rate, and the joint LPE probability, is lower for women on the average.

The complicating factor is that this participation rate for females has been dramatically rising toward the rate for males over the past few decades. This may be the most significant labor force event since World War II. Table 2 shows the rapid rise in work force participation by U.S. women from 1948 to 1988. The participation rate for females remains below that for males but is clearly catching up. Obviously, changing social norms regarding women in the workplace are a major reason, along with the increase in single-parent households. The need to keep up with inflation *via* two wage earners or to partially replace the income of a laid-off husband has also played a role. A major implication, therefore, is that the economic expert would be conservative in projecting the Joint probability LPE factor for an average female into the future by using even as much as a 10-year historical average of female participation rates. In this case, the past may not predict the future very well. We use the last reported year of data as only one approach for accommodating this upward trend in participation of females.<sup>2</sup>

Still another complication is that, whatever is the average participation rate for females as a group, individual females seem to vary further around the average than do males. This at least appears to be true from the cases which we have handled. Some females do not participate at all during their lifetimes; some work intermittently, often depending upon their family situation; and some are in the work force for their entire lifetimes, even during the child-rearing years. Thus, it is even more difficult than normal to discuss "statistical averages" for this group. Indeed, the economic expert must carefully consider the participation track record of the individual female, assuming that she is not a minor child.

If the female has a long record of participation and employment, even during the child-rearing years to her date of injury or death, the participation rate might be set at 100 percent, at least until around age 60. If the female was out of the work force during child-rearing years, then her education and work activity prior to the birth of the first child might be relevant. Had she worked, then a return to work force activity after the last child reached majority might be projected, with average female LPE reductions after that time. Had she been out of the work force only a short time, a very quick return might be assumed, with average LPE reductions before the children would have left home. After all, since the late 1970s more than half of wives with children under 18 have been participating in the U.S. work force.<sup>3</sup> On the other hand, had the female never worked, only a very generalized lost earning capacity estimate may be possible, assuming she had planned to enter the labor force, say, after her children became teenagers.

Aside from the lower LPE probability, females also have lower earnings, when

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<sup>2</sup> Because participation rates for males have been slightly declining, especially in older age brackets, a similar argument can be made for only using the last reported year of participation data for males. Also, see Howard Fullerton, Jr., *Labor Force Projections: 1986 to 2000*, MONTHLY LABOR REVIEW (September 1987), pp. 19-29.

<sup>3</sup> Beverly Johnson, *Marital and Family Characteristics of Workers, 1970-1978*, MONTHLY LABOR REVIEW (April, 1979), p. 49.

**TABLE 2**  
**PERCENTAGE OF WOMEN PARTICIPATING IN THE LABOR FORCE,**  
**1948 to 1988**

	16 years and over	16 to 19 years			20 years and over						
		Total	16 to 17 years	18 to 19 years	Total	20 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
1948	32.7	42.0	31.4	52.1	31.8	45.3	33.2	36.9	35.0	24.3	9.1
1949	33.1	42.4	31.2	53.0	32.3	45.0	33.4	38.1	35.9	25.3	9.6
1950	33.9	41.0	30.1	51.3	33.3	46.0	34.0	39.1	37.9	27.0	9.7
1951	34.6	42.4	32.2	52.5	34.0	46.5	35.4	39.8	39.7	27.6	8.9
1952	34.7	42.2	33.4	51.3	34.1	44.7	35.4	40.4	40.1	28.7	9.1
1953	34.4	40.7	31.0	50.7	33.9	44.3	34.0	41.3	40.4	29.1	10.0
1954	34.6	39.4	28.7	48.7	34.2	45.1	34.4	41.2	41.2	30.0	9.3
1955	35.7	39.7	28.9	50.9	35.4	45.9	34.9	41.6	43.8	32.5	10.6
1956	36.9	42.2	32.8	51.9	36.4	46.3	35.4	43.1	45.5	34.9	10.8
1957	36.9	41.1	31.1	51.4	36.5	45.9	35.6	43.3	46.5	34.5	10.5
1958	37.1	39.0	28.1	50.8	36.9	45.3	35.6	43.4	47.8	35.2	10.3
1959	37.1	38.2	28.8	49.0	37.1	45.1	35.3	43.4	49.0	36.6	10.2
1960	37.7	39.3	29.1	50.9	37.6	45.1	36.0	43.4	49.9	37.2	10.8
1961	38.1	39.7	28.5	51.0	38.0	47.0	36.4	43.8	50.1	37.9	10.7
1962	37.9	39.0	27.1	50.8	37.8	47.3	36.3	44.1	50.0	38.7	10.0
1963	38.3	38.0	27.1	50.4	38.3	47.5	37.2	44.9	50.6	39.7	9.6
1964	38.7	37.0	27.4	49.2	38.9	49.4	37.2	45.0	51.4	40.2	10.1
1965	39.3	38.0	27.7	49.3	39.4	49.9	38.5	46.1	50.9	41.1	10.0
1966	40.3	41.4	30.7	52.0	40.1	51.5	39.8	36.8	51.7	41.8	9.6
1967	41.1	41.6	31.0	52.2	41.1	53.3	41.9	48.1	51.8	42.4	9.6
1968	41.6	41.9	31.7	52.4	41.6	54.5	42.6	48.9	52.3	42.4	9.6
1969	42.7	43.2	33.7	53.3	42.7	56.7	43.7	49.9	53.8	43.1	9.9
1970	43.3	44.0	34.9	53.6	43.3	57.7	45.0	51.1	54.4	43.0	9.7
1971	43.4	43.4	34.3	53.1	43.3	47.7	45.6	51.6	54.3	42.9	9.5
1972	43.9	45.8	36.7	55.5	43.7	59.1	47.8	52.0	53.9	42.1	9.3
1973	44.7	47.8	39.1	56.8	44.4	61.1	50.4	53.3	53.7	41.1	8.9
1974	45.7	49.1	40.4	58.0	45.3	63.1	52.6	54.7	54.6	40.7	8.1
1975	46.3	49.1	40.2	58.1	46.0	64.1	54.9	55.8	54.6	40.9	8.2
1976	47.3	49.8	40.7	58.9	47.0	65.0	57.3	57.8	55.0	41.0	8.2
1977	48.4	51.2	42.1	60.3	48.1	66.5	59.7	59.6	55.8	40.9	8.1
1978	50.0	53.7	45.4	62.0	49.6	68.3	62.2	61.6	57.1	41.3	8.3
1979	50.9	54.2	45.6	62.7	50.6	69.0	63.9	63.6	58.3	41.7	8.3
1980	51.5	52.9	43.6	61.9	51.3	68.9	65.5	65.5	59.9	41.3	8.1
1981	52.1	51.8	42.5	60.9	52.1	69.6	66.7	66.8	61.1	41.4	8.0
1982	52.6	51.4	41.0	61.2	52.7	69.8	68.0	68.0	61.6	41.8	7.9
1983	52.9	50.8	39.9	60.7	53.1	69.9	69.0	68.7	61.9	41.5	7.8
1984	53.6	51.8	41.2	61.8	53.7	70.4	69.8	70.1	62.9	41.7	7.5
1985	54.5	52.1	42.1	61.7	54.7	71.8	70.9	71.8	64.4	42.0	7.3
1986	55.3	53.0	43.7	62.3	55.5	72.4	71.6	73.1	65.9	42.3	7.4
1987	56.0	53.3	44.6	62.2	56.2	73.0	72.4	74.5	67.1	42.7	7.4
1988	56.6	53.6	44.0	62.9	56.8	72.7	72.7	75.2	69.0	43.5	7.9

SOURCES: For years 1948-1983, Bureau of Labor Statistics, U.S. Department of Labor, HANDBOOK OF LABOR STATISTICS 1985, (Washington, D.C.: U.S. Government Printing Office, 1985), for years 1984-1988, annual editions of EMPLOYMENT AND EARNINGS, January 1985-1989.



working, than do males. Median annual earnings for females have varied in the last several years between 60 and 65 percent of median earnings for males.<sup>4</sup> One reason is that more females than males work part-time. Another reason is that women tend to work in occupations which pay less. Table 3 shows the occupational distribution of male and female workers, and the clustering of females in lower-paying types of work is obvious.

Females also move in and out of work force participation at a greater rate than do males, on average; in other words, this participation is discontinuous. To the extent this hurts seniority, for example, it is another factor in lowering the pay of females versus males. Even after considering all of the above factors, however, sex discrimination does appear to remain as a factor explaining the male/female pay gap.<sup>5</sup> "Comparable worth" is among the resulting issues which may affect earning capacity estimates for females, depending upon how the issue is ultimately resolved.

In specific cases involving the earning capacity of females, the earnings differential of average females below that of average males may be of no significance. When the injured or deceased female has wage history for many years, the future will be projected on the basis of her own earnings and her average annual rate of growth in wage earnings. Her wage earnings may be less than those of males in the same occupation and for the same company. Yet the overriding principle must be that the past earnings track record for *that person* is the best basis for predicting likely wage earnings in the future. Some may argue that a lost earning capacity projection should anticipate the closing of male/female earnings gaps in future years. Our opinion is that such a method, at this time, is simply too speculative.

Assume, on the other hand, that the female does not have an earnings record which can be used as a basis for projecting future losses. She may be a minor child, for example, and a "statistical person" must be created to project her earnings as an average female high school or college graduate. Projecting a lifetime of earnings on the basis of past earnings of "average" females is, again, a problem. Participation rates for females have rapidly increased, and most believe that male/female earnings gaps will at least narrow to some extent. Yet, past average earnings of females are a factual basis for projecting the future, and no one is certain how much future wages for females—versus males—will depart from past history. As a compromise, the economic expert may make a projection based upon the past wage earnings history of average females and, in testimony, supplement this projection in either of two ways. First, he or she may testify to the conservatism of this projection, considering the increasing participation rates of females and closing male/female wage differentials. Alternatively, the expert may make alternative projections with more optimistic assumptions about future labor force participation by females and/or about a narrowing gap in earnings levels of males over females.

### C. Non-Market Services

The final, and commonly highlighted, area in which females differ from males in

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<sup>4</sup> Francie D. Blou and Marianne A. Ferber, *Occupations and Earnings of Women Workers*, WORKING WOMEN (Madison, Wisconsin: Industrial Relations Research Association, 1987), p. 43.

<sup>5</sup> See, for example, F. Ray Marshall, et. al. LABOR ECONOMICS (Richard D. Irwin, Inc.: Homewood, Illinois, 1984), p. 574.

**TABLE 3**  
**EXPERIENCED CIVILIAN LABOR FORCE**  
**BY OCCUPATION AND SEX, 1988**  
 (percent distribution)

	Males	Females
Total, 16 years and over (thousands)	63,273	51,696
Percent	100.0	100.0
Managerial and professional specialty	25.5	25.2
Executive, administrative, and managerial	13.6	10.8
Professional specialty	11.9	14.4
Technical, sales, and administrative support	19.7	44.6
Technicians and related support	2.9	3.3
Sales occupations	11.1	13.0
Administrative support, including clerical	5.7	28.3
Service occupations	9.6	17.9
Private household	.1	1.7
Protective service	2.6	.5
Service, except private household or protective	6.9	15.7
Precision production, craft, and repair	19.7	2.3
Operators, fabricators, and laborers	20.9	8.9
Machine operators, assemblers, and inspectors	7.6	6.4
Transportation and material moving occupations	6.9	.8
Handlers, equipment cleaners, helpers, and laborers	6.4	1.6
Farming, forestry, and fishing	4.5	1.1

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor, EMPLOYMENT AND EARNINGS, January 1989, Table 21, p. 182.

terms of lost earning capacity estimates is the value of their non-market services. The major category of non-market services is the household services provided by the wife and/or mother. This topic was exhaustively treated in Chapter 5 and need not be repeated here. It should be noted, however, that household services loss, in principle, should not differ for males and females, as both contribute in a measurable way to the operation of the household. This is particularly important as labor force participation rates for females approach the rates for males and as two-adult-worker households become common.

The other area of "non-market" services which females often provide is non-paid time spent working in the business of her husband. This may be especially true when the husband is a small businessman. Here, economic loss is the

replacement cost to the husband of hiring someone to perform the tasks formerly performed by the wife. In effect, the business-related services of the injured or deceased wife have not been valued in the marketplace, but they should have been.

### 7.3 Minorities

#### A. *General*

The two large minority groups in the United States to be discussed are Blacks and Hispanics. Both differ from “Whites” in two areas which may influence lost earning capacity estimates—labor force attachment (the LPE issue) and wage levels earned when working.

#### B. *Blacks*

Blacks do differ significantly from whites, on average, in their joint probability at any age of being alive, participating in the work force, and employed. Moreover, male and female blacks significantly differ in these probabilities. Table 1 demonstrates, for example, that blacks have a lower life expectancy than whites, whether male or female, but, as with whites, black females live longer.

The more significant differences are in the “P” and “E” probabilities. Labor force participation rates for black males are below those for white males, as shown in Table 1. On the other hand, lifetime female participation rates are slightly higher for blacks than for whites. This seems true primarily because of the greater proportion of black households headed by females, who need to find work.

With regard to the employment rate for those attempting to find a job (e.g. participating), Table 1 also demonstrates that blacks have lower employment rates than do whites. Moreover, employment rates for black teenagers have been very low compared to those for same-age whites.

It is therefore true that joint “LPE” probabilities of work-life expectancy are lower for “average” blacks than for “average” whites, even though differentials are not as great for black females. This certainly underscores why “LPE” work-life adjustments should be categorized by race and sex. It also emphasizes why the case of any given black must be separately analyzed. If he or she has a continuous record of participation and employment, for example, the economic expert does him or her a particular disservice by adjusting earning power for work-life probabilities of “average” blacks.

Working blacks as a group also earn significantly lower wages than do working whites. If the injured or deceased black has an earnings track record, the black/white wage gap does not matter. Future earnings for that particular black are projected on the basis of his or her unique earnings history. When a “statistical person” must be created for projecting lost earning capacity, as with a minor child, the much lower rate of earnings by “average” blacks makes a significant difference. Table 4 shows median family income for blacks and whites; in the 1980s, the black/white earnings gap certainly did not lessen, with blacks earning 56% of the income of whites by 1987. Some of this earnings differential is because of the lower LPE probabilities of blacks, but many studies confirm that blacks make less than whites even when the LPE differences are disregarded.

Why? As with females, the lower earnings of blacks as a group can be explained,

**TABLE 4**  
**CHANGES IN BLACK INCOME RELATIVE TO WHITES:**  
**1970-1987 (IN CURRENT DOLLARS)**

	Median Household Income		Black income as percent of white income
	Blacks	Whites	
1970	5537	9097	61
1971	5578	9443	59
1972	5938	10173	58
1973	6485	11017	59
1974	6964	11710	59
1975	7408	12340	60
1976	7902	13289	59
1977	8422	14272	59
1978	9411	15660	60
1979	10133	17259	59
1980	10764	18684	58
1981	11309	20153	56
1982	11968	21117	57
1983	12473	22035	57
1984	13471	23647	57
1985	14819	24908	59
1986	15080	26175	58
1987	15475	27427	56

SOURCE: U.S. Bureau of Census, STATISTICAL ABSTRACT OF THE UNITED STATES, 1989 (Washington, D.C.: U.S. Government Printing Office, 1989), Table 712, p. 440.

to a significant extent, by the fact that blacks are clustered in lower-paying types of jobs, even though some progress has been made in the occupational distribution of blacks toward higher-paying occupations over the past few decades. Table 5 shows this clearly. A reason for this is the lesser extent to which blacks can take advantage of, and have taken advantage of, educational and training opportunities. Discrimination by employers and by trade unions is also a factor. Whatever the reasons, blacks as a statistical group earn less than whites. It is difficult to ignore this fact in lost earning capacity estimates which must rely upon data regarding statistical classes of persons.

### C. Hispanics

Hispanics are the other major minority group and are expected to surpass blacks as the largest minority group in the U.S. by the year 2000. Besides the common Spanish language which identifies this group, Hispanics are not homogeneous. There are three large Hispanic sub-groups in the U.S.—Mexican-Americans, Puerto Ricans,

**TABLE 5**  
RELATIVE OCCUPATIONAL DISTRIBUTION OF  
WHITES AND BLACKS—1988

	Whites	Blacks	Ratio of Blacks to Whites
<b>Total</b>	100%	100%	—
Managerial and professional specialty	26.6	15.4	.58
Executive, administrative, and managerial	13.0	6.8	.52
Professional specialty	13.4	8.6	.64
Technical, sales, and administrative support	31.2	27.8	.89
Technicians and related support	3.0	2.8	.93
Sales occupations	12.5	7.2	.58
Administrative support, including clerical	15.7	17.8	1.13
Service occupations	12.1	23.1	1.91
Private household	.7	1.8	2.57
Protective service	1.6	2.8	1.75
Service, except private household and protective	9.9	18.6	1.88
Precision production, craft and repair	12.3	8.8	.72
Operators, fabricators, and laborers	14.7	22.9	1.56
Machine operators, assemblers and inspectors	6.7	10.3	1.54
Transportation and material moving occupations	4.0	6.2	1.55
Handlers, equipment cleaners, helpers, and laborers	4.0	6.5	1.63
Farming, forestry, and fishing	3.2	1.9	.59

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor, EMPLOYMENT AND EARNINGS, January 1989, Table 21, p. 182.

and Cubans—and characteristics of the three groups relating to lost earning capacity estimates, may differ.

As with blacks, Hispanics differ from whites both in terms of the probability of working at any age and the wage level earned if and when working. In terms of LPE probabilities, life expectancy rates for U.S. Hispanics have not been calculated over time, so that all-male and all-female U.S. rates are generally used. Table 6 shows that the all-Hispanic labor force participation rate was 67.4 percent in 1988. This was actually higher than the overall U.S. participation rate of 65.9 percent

in 1988. On the other hand, participation rates are lower for female Hispanics and young Hispanics than for comparable all-U.S. groups, and relative participation rates are especially low for females and youths of Puerto Rican descent.

In terms of employment, Hispanic employment rates are higher than those for blacks but not as high as those for whites or those for "all workers." Table 6 demonstrates a 1988 unemployment rate of 7.0 percent for Hispanic males age 20 and over versus 4.8 percent for all males 20 and over. The comparison for females is 7.1 percent versus 4.9 percent, respectively. Especially when a loss projection must be made on a Hispanic "statistical person," LPE statistics for all Americans, or for all minorities, or for blacks may be inappropriate. Rather, probabilities specific to Hispanics should be used, and even these may need modification, depending upon the sub-class of Hispanic.<sup>6</sup>

The second difference in Hispanics and whites in formulating loss estimates is wage levels when working. Table 7 shows that, as of 1987, Hispanic families earned 70 percent of the average annual median income of white families, and their relative position has been worsening. As with blacks, part of this lower wage earnings level is the lower LPE probability. The occupational distribution of Hispanics in lower-paying jobs (see Table 8), their educational and training levels, and discrimination are also factors. When loss projections are based upon "average" Hispanics, these factual differences should be considered.

## 7.4 Minor Children

### A. Earnings Projections

Special issues may exist in projecting the earning capacity of minors, as matters of economics apart from issues relating to matters of law. First, virtually all minors lack an earnings "track record," so that a "statistical person" must be created to project what that minor would have earned in future years. The defense, of course, will argue that such projections are speculative, and the strength of this argument may increase in cases where the minor child was very young when killed or injured.

What are the major variables in creating a "statistical person" to represent the injured or deceased minor? In our opinion, the projection must be based upon statistics relating to the race, sex, age and assumed ultimate educational level of the minor, had he not been killed or injured. The latter assumption can be inferred from the educational level of the parents, from the grades of the minor in school, and/or from the intentions of the minor and his or her parents regarding attending college, for example. Commonly, multiple projections will be made, under alternative assumptions of educational attainment—less than a high school attendee, some years of high school, high school graduate, 1-3 years of college, college graduate, or graduate school attainment.

Given the assumption(s) on educational attainment, and remembering clear differences in earnings patterns by race (minority status) and sex, the major issue becomes what economists call "age-earnings profiles." Age is a major factor in predicting earnings, and it is most pronounced for males. As maturity, educational

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<sup>6</sup> Also, see Peter Catton, *The growing presence of Hispanics in the U.S. work force*, MONTHLY LABOR REVIEW (August 1988), pp. 9-14.

**TABLE 6**  
**EMPLOYMENT STATUS OF THE CIVILIAN NONINSTITUTIONAL**  
**POPULATION BY HISPANIC ORIGIN, 1988**

Employment status, sex, and age	Total All Workers	Total Hispanic Origin <sup>1</sup>	Mexican Origin	Puerto Rican Origin	Cuban Origin
<b>TOTAL</b>					
Civilian noninstitutional population	184,613	13,325	8,013	1,599	849
Civilian labor force	121,669	8,982	5,572	883	565
Percent of population	65.9	67.4	59.5	55.2	66.5
Employed	114,968	8,250	5,066	807	537
Agriculture	3,169	407	369	4	5
Nonagricultural industries	111,800	7,843	4,696	803	532
Unemployed	6,701	732	506	76	28
Unemployment rate	5.5	8.2	9.1	8.6	5.0
Not in labor force	62,944	4,342	2,441	716	284
<b>Men, 16 years and over</b>					
Civilian noninstitutional population	87,857	6,604	4,133	705	417
Civilian labor force	66,927	5,409	3,482	513	329
Percent of population	76.2	81.9	84.2	72.8	78.9
Employed	63,273	4,972	3,177	487	313
Agriculture	2,493	356	324	4	4
Nonagricultural industries	60,780	4,616	2,853	482	308
Unemployed	3,655	437	304	46	16
Unemployment rate	5.5	8.1	8.7	9.0	4.8
Not in labor force	20,930	1,195	652	192	88
<b>Men, 20 years and over</b>					
Civilian noninstitutional population	80,553	5,921	3,670	634	394
Civilian labor force	62,768	5,031	3,204	483	319
Percent of population	77.9	55.0	87.3	76.2	81.0
Employed	59,781	4,680	2,966	443	304
Agriculture	2,271	327	299	4	4
Nonagricultural industries	57,510	4,353	2,667	439	300
Unemployed	2,987	351	237	40	15
Unemployment rate	4.8	7.0	7.4	8.2	4.7
Not in labor force	17,785	890	466	152	75
<b>Women, 16 years and over</b>					
Civilian noninstitutional population	96,756	6,721	3,880	894	432
Civilian labor force	54,742	3,573	2,090	370	237
Percent of population	56.6	53.2	53.9	41.4	54.9
Employed	51,696	3,278	1,889	340	224
Agriculture	676	51	45	— <sup>2</sup>	1
Nonagricultural industries	51,020	3,227	1,843	340	223
Unemployed	3,048	296	201	30	12
Unemployment rate	5.6	8.3	9.6	8.1	5.2
Not in labor force	42,014	3,147	1,790	524	195
<b>Women, 20 years and over</b>					
Civilian noninstitutional population	89,532	6,050	3,438	801	409
Civilian labor force	50,870	3,281	1,886	342	226
Percent of population	56.8	54.2	54.9	42.7	55.3
Employed	48,383	3,047	1,730	319	215
Agriculture	625	49	43	—	1
Nonagricultural industries	47,757	2,998	1,687	319	214
Unemployed	2,487	234	156	23	11
Unemployment rate	4.9	7.1	8.3	6.7	5.0
Not in labor force	38,662	2,769	1,553	459	183
<b>Both sexes, 16 to 19 years</b>					
Civilian noninstitutional population	14,527	1,354	905	163	46
Civilian labor force	8,031	671	482	59	20
Percent of population	55.3	49.6	53.3	36.2	43.5
Employed	6,805	523	369	45	18
Agriculture	273	32	27	—	—
Nonagricultural industries	6,532	492	342	45	18
Unemployed	1,226	148	113	14	2
Unemployment rate	15.3	22.0	23.4	23.2	—
Not in labor force	6,497	683	423	105	25

<sup>1</sup> Includes persons of Central or South American origin and of other Hispanic origin, not shown separately

<sup>2</sup> Data not shown where base is less than \$35,000.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor, EMPLOYMENT AND EARNINGS, January 1989, Tables 39-40, pp. 206-207.

**TABLE 7**  
**CHANGES IN MEDIAN HOUSEHOLD INCOME**  
**RELATIVE TO WHITES, 1972-1987**

	Median household income current dollars			Hispanic median income as a percent of	
	White	Black	Hispanic	White	Black
1972	10173	5938	7677	75	129
1973	11017	6485	8144	74	126
1974	11710	6964	8906	76	128
1975	12340	7408	8865	72	120
1976	13289	7902	9569	72	121
1977	14272	8422	10647	75	126
1978	15660	9411	11803	75	125
1979	17259	10133	13042	76	129
1980	18684	10764	13651	73	127
1981	20153	11309	15300	76	135
1982	21117	11968	15178	72	127
1983	22035	12473	15794	72	127
1984	23647	13471	16992	72	126
1985	24908	14819	17465	70	118
1986	26175	15080	18352	70	122
1987	27427	15475	19305	70	125

SOURCE: U.S. Bureau of Census, STATISTICAL ABSTRACT OF THE UNITED STATES: 1989 (Washington, D.C.: U.S. Government Printing Office, 1989), Table 712, p. 440.

**TABLE 8**  
**OCCUPATIONAL DISTRIBUTION OF HISPANICS AND NON-HISPANICS**  
**BY SEX, 1983-1987**

Occupation	Hispanic			Non-Hispanic		
	Percent distribution 1987	Share of total growth, 1983-87	Percent changes, 1983-87	Percent distribution, 1987	Share of total growth, 1983-87	Percent change, 1983-87
Men, 16 years and older .....	100.0	100.0	25.0	100.0	100.0	8.3
Managerial and professional specialty .....	12.0	13.8	30.0	25.9	31.8	10.3
Technical, sales, and administrative support .....	15.7	21.4	37.5	20.3	25.1	10.4
Service occupations .....	13.9	10.5	17.0	9.2	6.7	5.9
Precision production, craft, and repair .....	20.5	17.9	21.0	19.9	21.0	8.7
Operators, fabricators, and laborers .....	29.1	25.4	21.1	20.2	21.2	8.7
Farming, forestry, and fishing .....	8.9	11.0	33.2	4.4	-5.9	-9.2
Women, 16 years and older .....	100.0	100.0	33.7	100.0	100.0	13.2
Managerial and professional specialty .....	14.7	22.2	61.2	25.0	44.5	26.2
Technical, sales, and administrative support .....	39.9	34.0	27.4	45.5	40.9	11.7
Service occupations .....	23.3	26.4	40.1	17.8	10.9	7.7
Precision production, craft, and repair .....	3.7	2.7	22.3	2.2	2.4	14.6
Operators, fabricators, and laborers .....	16.9	14.4	27.5	8.4	2.1	2.9
Farming, forestry, and fishing .....	1.5	.1	2.3	1.1	-.7	-7.1

SOURCE: Peter Catton, *The growing presence of Hispanics in the U.S. work force*, MONTHLY LABOR REVIEW, August 1988, p. 13.



attainment, work force participation, promotions, and seniority affect annual earnings at early ages, say from age 20 to the late 40's, the annual earnings for males rise rapidly. From about age 50, earnings begin to level off and then decline very rapidly from about age 60 onward. The primary reasons are disability and retirement rates.

Some economists base projections on U. S. Department of Commerce age-earnings data, by educational level, for the latest year of published data. The problem is that participation rates and, especially, employment rates may vary from year to year. Thus, a one-point-in-time survey of earnings by age may inappropriately reflect a year of unusually high or unusually low unemployment.

We generally prefer to use as a data source an annual publication of the U.S. Department of Commerce entitled *Money Income of Families and Persons in the United States*. The survey is taken each year and breaks down annual income by race, sex, and educational attainment. Wage earnings can be projected for reported full-time workers based upon these average earnings data by race, sex, and education. Then, the standard LPE adjustment will average out any "quirks" in unemployment rates, for example. Since a random sample is taken for all ages of a given race, sex, and educational level, the age-earnings profile is considered. This is especially true for a minor child, because he or she would have earned income over all of the ages in the work-life of a person of his race, sex, and educational attainment.

Alternatives or modifications to this standard approach are available and have been used in individual cases. For example, a deceased child may have been close to college graduation as a chemical engineer. Such individuals earn much more over their work-life than do "average" college graduates. The College Placement Council publishes data from college placement offices across the country on average starting salaries for graduates *by major*. The data have been broken down by sex, and include starting salaries for both Bachelor's and Master's graduates. Thus pay differentials by college major can be calculated and considered in lifetime earnings projections.

Alternatively, earnings can be projected at minimum wage levels, or at average earnings levels for selected types of crafts, manufacturing workers, etc. Obviously, the basis for the projection must lie in some knowledge that the minor was headed toward some specific career.

The age of the child upon death or serious injury certainly may make a difference to the economic expert. Was he or she an infant, already in college or in a vocation, or somewhere in the years between? If the child was an infant, or very young, it is very difficult to assume a vocation. Average earnings by race, sex, and educational attainment are generally used, with multiple assumptions on educational attainment. Also, the net of the "teeter-totter" effect becomes more powerful. If average wage growth is assumed to be 7 percent and average discount rates to be 9 percent, earnings potential may be reduced by a net of approximately 2 percent annually for 18-22 years before post-schooling earning power even begins. Then the net annual decline of 2 percent continues through the work-life expectancy.

Another problem as minors are younger is also related to the great length of time encompassed by future projections. If participation rates for females are projected for the next 50 or more years, based upon past rates, the projection may be very conservative. We know these rates have rapidly risen, and they may continue

rising toward the rates for males. Similarly, the percentage of total income in fringe benefits has rapidly grown but recently leveled. A projection far into the future, based upon current percentages of fringe benefits to total wages, may be conservative or liberal depending upon whether fringes continue to grow relative to wages.

Finally, a major problem can exist for very young children who have been injured. Normally, a vocational expert assists the economist by assessing the difference between pre- and post-injury earning power. The child may be so young that a reasonable vocational assessment is difficult, and a calculation of economic loss may likewise be difficult. It may also be argued that the child has many years to be rehabilitated and educated before earnings normally begin.

Obviously, these issues and problems lessen as the deceased or injured child is older. As he or she nears high school and/or college graduation, more specific vocational patterns can be assumed with greater certainty.

#### B. *Personal Consumption*

Turning to issues in which the law specifically affects minor child estimates, a major consideration is the legal treatment of personal consumption in a particular jurisdiction. This concerns the amount which a deceased person would have spent on himself and which would not have been available to survivors or an estate had he lived. In the best study available, Earl Cheit estimates personal consumption, as a percentage of family income, of each adult in two-adult households, with children and without.<sup>7</sup> The greatest percentage deduction for either adult is 30 percent of family income. Yet, we are now talking about a minor child, who is single and would have been consuming some percentage of his or her income if he or she had not died.

How does the law affect treatment of personal consumption in various jurisdictions? There is no impact in Kentucky, as economists cannot, as a matter of law, make a personal consumption deduction from the earning power estimate in any case. Thus, Kentucky is perhaps the most liberal state, from an economist's point of view, in wrongful death cases involving minors. In the neighboring state of Tennessee, the situation is less clear. The Tennessee Supreme Court did rule that personal consumption must be deducted in death cases, but the trial court may not instruct the jury to deduct what a minor child *would have spent* on himself.<sup>8</sup> Rather, the opinion seems to imply a deduction of only enough money to have kept the person sufficiently healthy to go to work. If this means a subsistence theory, government statistics may result in a percentage-of-earnings reduction anywhere from 20 to 50 percent. This depends on how the subsistence level relates to the assumed earnings level of the particular minor. Finally, in the many states which do require personal consumption deductions of what would have been spent, data from Department of Commerce sources indicate that the reduction could be almost 85 percent of wage earnings.<sup>9</sup> Some even argue for a personal consumption deduction

<sup>7</sup> Earl F. Cheit, *INJURY AND RECOVERY IN THE COURSE OF EMPLOYMENT* (New York: John Wiley & Sons, Inc., 1961), p. 78.

<sup>8</sup> *WALLACE V. COUCH*, 642 S.W. 2d 141 (Tenn. 1982).

<sup>9</sup> U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey Series: Interview Series 1972 & 1973* (Washington, D.C.: U.S. Government Printing Office, 1973).

of as high as 94-95 percent for minors, since the savings rate for Americans is around 5-6 percent. Yet, this is the rate of "obvious" savings, such as savings accounts, and excludes savings through the buildup of equity in a house or the accumulation of other assets. We generally would argue in these jurisdictions for a deduction of 80-85 percent of earnings, although the treatment of hedonic damages could affect the deduction (see Chapter 3). Depending upon the consumption theory utilized, deductions will be made from both wage and fringe benefits estimates.

Related is the issue of whether one is concerned with a "loss to the estate" state or a "loss to the survivors" state. Again, Kentucky is one of the former and does not allow a personal consumption deduction. Thus, the lump sum value of the lifetime earnings of a minor is the value of loss to the estate in earning power. In other "estate" states, one of the personal consumption deductions discussed above must be deducted from wage earning capacity after majority age would have been reached. Moreover, the courts may require a deduction because the estate or survivor escaped the costs of rearing the child until majority age. Or the economist may choose to make such a deduction in the absence of legal guidelines. The argument for making a deduction seems stronger when hedonic estimates of the lost pleasure of life cover ages through majority. Table 9 provides sound data for such estimates through age 17, and estimates of college costs are available generally or from specific colleges.

Interestingly, what is seldom brought up is that the parents also escape some household services which would have been provided to the minor child. If such services have a value on the plaintiff's side, the escaped services have the same value on the defense side. Finally, the major additional issue in "survivor" states arises after a personal consumption deduction has been taken from wage earnings when majority age is reached. How much of the remainder would have gone to the parents? We are not aware of useful statistics here and can only present the earnings loss, less personal consumption, to the jury for consideration as an amount that would have been *available* for parents or other survivors.

## 7.5 Single Persons

Briefly, three issues should be kept in mind concerning single persons who are not minors and are presumably in the workforce. First, wage earnings are lower for single persons than for comparable married persons. One reason is that life, participation, and employment rates are lower. Rates of pay are also lower, but this is affected by the fact that single persons are younger, on average, than are married persons. Yet, the lower earnings and lower LPE's cannot be ignored, especially if a "statistical person" who is or was single is being projected. This might occur when the single person had not been in the work force for enough years to provide adequate work history for a projection.

The major difference from married persons is the same as the above issue for minor children. A personal consumption deduction, where allowed, is likely to be much higher than a 30 percent maximum for any married adult. Also, in "loss to survivor" states, how much of wage earnings, less personal consumption, would actually have gone to parents or other surviving relatives?

**TABLE 9**  
**COST OF RAISING A CHILD BY REGION AND EXPENDITURE CATEGORY:**  
**URBAN CHILDREN AT MODERATE-COST LEVEL, 1988**

Region and age of child (years)	Total <sup>1</sup>	Food at home <sup>2</sup>	Food away from home	Clothing	Housing <sup>3</sup>	Medical care	Education	Transportation	All other <sup>4</sup>
<b>MIDWEST:</b>									
Under 1 .....	\$ 4,927	\$ 640	\$ 0	\$ 155	\$ 2,118	\$ 365	\$ 0	\$ 904	\$ 745
1 .....	5,072	785	0	155	2,118	365	0	904	745
2 - 3 .....	4,724	785	0	252	1,861	365	0	787	674
4 - 5 .....	5,005	902	164	252	1,861	365	0	787	674
6 .....	5,259	873	164	349	1,765	365	175	787	781
7 - 9 .....	5,462	1,076	164	349	1,765	365	175	787	781
10 - 11 .....	5,668	1,280	164	349	1,765	365	175	787	781
12 .....	6,042	1,309	197	505	1,829	365	175	846	816
13 - 15 .....	6,188	1,455	197	505	1,829	365	175	846	816
16 - 17 .....	6,778	1,629	197	699	1,893	365	175	933	887
Total .....	100,596	20,392	2,494	6,830	33,372	6,570	2,100	14,928	13,910
<b>NORTHEAST:</b>									
Under 1 .....	4,887	756	0	155	2,150	365	0	787	674
1 .....	5,062	931	0	155	2,150	365	0	787	674
2 - 3 .....	4,935	902	0	272	1,957	365	0	729	710
4 - 5 .....	5,215	1,018	164	272	1,957	365	0	729	710
6 .....	5,638	1,018	197	369	1,925	365	219	729	816
7 - 9 .....	5,842	1,222	197	369	1,925	365	219	729	816
10 - 11 .....	6,104	1,484	197	369	1,925	365	219	729	816
12 .....	6,466	1,484	197	543	1,990	365	219	816	852
13 - 15 .....	6,640	1,658	197	543	1,990	365	219	816	852
16 - 17 .....	7,110	1,833	230	679	2,022	365	219	875	887
Total .....	106,227	23,303	2,758	7,142	35,682	6,570	2,628	13,878	14,266
<b>SOUTH:</b>									
Under 1 .....	5,371	698	0	175	2,278	406	0	962	852
1 .....	5,517	844	0	175	2,278	406	0	962	852
2 - 3 .....	5,177	815	0	272	2,022	406	0	846	816
4 - 5 .....	5,428	902	164	272	2,022	406	0	846	816
6 .....	5,794	902	197	369	1,925	406	262	846	887
7 - 9 .....	5,968	1,076	197	369	1,925	406	262	846	887
10 - 11 .....	6,201	1,309	197	369	1,925	406	262	846	887
12 .....	6,602	1,309	230	543	1,990	406	262	904	958
13 - 15 .....	6,777	1,484	230	543	1,990	406	262	904	958
16 - 17 .....	7,265	1,629	230	699	2,054	406	262	991	994
Total .....	109,661	20,743	2,890	7,222	36,262	7,308	3,144	15,982	16,110
<b>WEST:</b>									
Under 1 .....	5,292	698	0	155	2,214	447	0	962	816
1 .....	5,467	873	0	155	2,214	447	0	962	816
2 - 3 .....	5,195	844	0	252	1,990	447	0	846	816
4 - 5 .....	5,508	960	197	252	1,990	447	0	846	816
6 .....	5,951	931	230	369	1,957	447	219	875	923
7 - 9 .....	6,155	1,135	230	369	1,957	447	219	875	923
10 - 11 .....	6,416	1,396	230	369	1,957	447	219	875	923
12 .....	6,758	1,396	230	524	2,022	447	219	962	958
13 - 15 .....	6,904	1,542	230	524	2,022	447	219	962	958
16 - 17 .....	7,567	1,745	263	660	2,118	447	219	1,050	1,065
Total .....	112,017	21,819	3,220	6,948	36,454	8,046	2,628	16,505	16,396

<sup>1</sup> Annual cost of raising a child from birth to age 18, by age, in a husband-wife family with no more than 5 children. For more information on these and additional child cost summaries, see USDA Miscellaneous Publication No. 1411, "USDA Estimates of the Cost of Raising a Child: A Guide to Their Use and Interpretation," by Carolyn S. Edwards, Family Economics Research Group, Agricultural Research Service, USDA.

<sup>2</sup> Includes home-produced food and school lunches.

<sup>3</sup> Includes shelter, fuel, utilities, household operations, furnishings, and equipment.

<sup>4</sup> Includes personal care, recreation, reading, and other miscellaneous expenditures.

SOURCE: Agricultural Research Service, U.S. Department of Agriculture, FAMILY ECONOMICS REVIEW, Vol. 2, No. 2, p. 24.

## 7.6 Retirement-Age Persons

### A. General

At the other end of the continuum from the special case of minor children are loss estimates involving retirement-age persons. The relevant age range might begin at age 55, as some retirement plans allow early retirement as early as this age. Of course, military personnel, police, firefighters, and certain other professions may provide for retirement, at least from that vocation, in the late 40's or early 50's after 20-30 years of service. For the relevant age range, generally age 55 and above, special issues may arise for the economic expert.

### B. Participation, Employment, and Hours

The first set of issues involves the assumptions to be made about labor force participation rates and employment rates for a specific retirement-age person. Table 1 demonstrates that participation rates for "average" persons of a given race and sex begin to decline rapidly after age 55 or so. This is usually because of retirement and temporary or permanent disability. Yet, the economic expert may consider adjusting the average participation rate either up or down, based upon characteristics of the specific individual. What was his health? When did he or she plan to retire? At what age was he or she fully vested in a retirement plan? How liberal were the early retirement provisions of the employer's plan? What is the average retirement age for employees of that company or of comparable employees in that industry or occupation?

On the other hand, employment rates of retirement-age persons who choose to continue working for their company are higher than average, even including employment statistics for retirement-age persons who may be out of a job but seeking work. Table 1 demonstrates this. Among the reasons for this are the seniority of such workers, their experience level, and their protection under the Age Discrimination in Employment Act (ADEA) of 1967, as amended. Again, a specific retirement-age person may have his or her employment rate adjusted above or below the average on the basis of such factors as work history and seniority status.

It may also be more important for older workers to consider the likely hours of work for those who are participating and employed. Older persons who work are less likely to work full-time, and the average hours worked by older persons fell significantly from 1968 to 1986. This is true for both males and females, as shown in Table 10.

### C. Post-Retirement

Another important ramification of the participation and employment adjustments concerns the retirement-age person who was injured and rendered incapable of continuing his or her past vocation. Vocational experts can project a lower-than-average participation and employment probability for seriously injured (handicapped) persons, but these probabilities for injured older workers who are forced out of their past vocation and employment are even lower than the all-age average. Thus, the gap between pre-and post-injury earning capacity is usually higher, all other things remaining the same, for retirement-age persons.

Another issue involves the possibility of post-retirement work had the retirement-

**TABLE 10**  
 PER CAPITA WEEKLY HOURS OF WORK AND ACTUAL HOURS,  
 BY SEX AND AGE, 1968 AND 1986 ANNUAL AVERAGES

Sex and age	Per capita weekly hours			Average hours at work		
	1968	1986	Percent change 1968-86	1968	1986	Percent change 1968-86
<b>Men</b>						
35-44 years	41.5	38.3	-7.7	45.7	44.7	-2.2
55-59 years	36.4	30.3	-16.7	44.3	43.0	-2.9
60-64 years	29.8	19.9	-33.2	42.7	40.8	-4.4
65 years and over	8.5	4.4	-48.2	34.7	31.2	-10.1
<b>Women</b>						
35-44 years	15.7	23.9	+55.2	35.5	36.8	+3.7
55-59 years	15.9	16.4	+3.1	36.9	35.9	-2.7
60-64 years	11.6	9.9	-14.7	35.6	33.7	-5.3
65 years and over	2.6	1.8	-30.8	30.6	26.8	-12.4

SOURCE: Industrial Relations Research Association, *THE OLDER WORKER*, Michael Borus, et. al., eds. (Madison, Wisconsin: Industrial Relations Research Association, 1988), p. 25.

age person not been killed or injured. Such work would generally be for another employer and quite possibly in another vocation. Whether estimates of post-retirement work are possible and sensible, as matters of economics, depends upon each particular case. Among the factors to be considered are the wishes and habits of the individual, the level of his or her retirement income, and the post-retirement work patterns of others who worked for the same company and/or in similar vocations.

Finally, assume the retirement-age person is already retired and not participating in the work force at the time of injury or death. A projection of lost earning power would not seem valid unless solid evidence is available that the individual planned to return to the work force, at least part-time. However, a projection of the lost household services to a spouse may still be necessary, especially in the case of a deceased female.

## 7.7 Professionals, Executives, and Entrepreneurs

### A. Professionals

"Professionals" are defined by the Fair Labor Standards Act (FLSA) based upon their job content and salary level. Both professionals and executives are exempt from the time reporting and overtime provisions of this Act. Less technically, professionals are generally people with college degrees, who exercise significant content knowledge and judgment in their everyday work.

For professionals who are neither executives nor entrepreneurs the method of loss estimation may not vary from that for blue collar workers or persons in general. If the person has a track record of salary earnings, the past average annual

growth in salary will be used to project future earnings. If the person does not have an adequate track record, perhaps because he or she was a very young professional, then an annual Department of Labor survey on salary levels of professional and administrative salaries can be used to project salary loss into the future. Alternatively, the College Placement Council annually reports starting salaries by college major.

Professionals, as a class, may also require more care in the estimation of employer contributions to fringe benefits. They are more likely to earn salaries above the annual maximum on which a required (percentage) employer contribution is calculated. Percentage contributions for social security, workers' compensation, unemployment compensation, and sometimes pension and related plans are mandated on a maximum salary base. If the actual or projected salary of a professional is above this base, then applying the specified percentage of salary maximum to their projected salary results in an overestimate of economic loss. Rather, the maximum dollar contribution should be the numerator and the projected salary the denominator to determine the "effective" percentage of wages added to the applicable fringe benefit category.

Professional and managerial employees also have a higher-than-average joint probability of life, participation, and employment, primarily because their employment rates are higher than for workers in other occupations. Apart from these relevant characteristics of professionals as a class, other issues which arise in economic loss estimates emanate from the "quirks" of particular professions. An example would be the economic loss of a professional athlete killed during his sports career.

#### B. Executives

"Executive" is a term generally applied to Chief Executive Officers of organizations and their immediate cabinet, consisting of vice presidents and other officers of the organization. Sometimes the term is extended to apply to certain director-level personnel. Future salary earnings estimates for such individuals are not unusual—the past average growth in annual earnings is used to project earnings growth into the future. The projection of bonus and profit sharing earnings is more complicated, because these elements of earnings may be tied to cyclical business profits. Thus, a trend rate of growth in such earnings may yield to a simple average of the past earnings in these categories. The same is often true in lost profits estimates (see Chapter 13.)

Moreover, fringe benefit loss estimates may become extremely complicated. Significant portions of salary may be deferred through Salary Reduction Agreements (SRA's), Keough Plans, and other mechanisms. Reliance upon W-2 statements or income tax returns, which often do not show these amounts, may result in a significant underestimate of earning capacity.

Also, executive fringe benefit plans often include stock option plans of various types. Assume that an executive, at the time of death, earned \$100,000 per year but could purchase company stock at 85 percent of market price up to 10 percent of his salary, or \$10,000. Further assume that this executive previously exercised the full extent of his stock option. The loss estimate would entail a projection of 10 percent of his or her likely salary through work-life expectancy. Next, the economic

expert might project the increase in stock total returns between the date of purchase each year and the end of work-life expectancy. This might be based on the average total returns in this stock over the past 10 years. Economic loss would then be 15-20% of the estimated value of the stock which would have been purchased. After all, the family could nevertheless purchase the same stock at 100 percent of purchase price, but they would also be required to pay other fees.

### C. *Entrepreneurs*

An entrepreneur is a person who manages, and generally owns, a business enterprise, assuming certain risks for the possibility of profits. It should be noted that farmers may also be considered entrepreneurs in terms of what follows. Let us assume an entrepreneur who both pays himself wages, fringes, and perhaps bonuses out of business revenues and also increases the profits and net worth of a corporate business each year. These are two elements of earning power and, therefore, of economic loss if the entrepreneur is killed or seriously injured.

The loss estimate for the first element—wage and related payments—is handled as with other professionals. Bonuses, particularly, may be a straight-line average of past bonuses projected into the future, if payments cycle up and down with the fortunes of the business.

The second possible element of a loss estimate—net worth loss—is more complicated. Net worth is the difference between assets and liabilities. It is also the amount of shareholder's equity in a corporation, which appears on the balance sheet. The entrepreneur's gain is better reflected in net worth *accretion* than in projected profits, as the former is the increase in the value of the business which they are generating by their efforts. And their share of the overall net worth (equity) at the time of death is not lost to the family—the survivors inherit it. Rather, future additions to net worth, based upon the entrepreneur's average annual increases in net worth in the past, are lost to survivors or an estate.

A complicating factor is that part of the future returns to the corporation are returns to equity already invested, rather than returns solely to the talent and energy of the entrepreneur. Yet, equity is reflected in assets minus liabilities, and accretions to net worth may totally or primarily result from the work of the entrepreneur. This will depend upon the particular industry and type of business, however, and a reduction may be necessary to reflect returns to invested equity, "installed" technology, and/or goodwill which lingers beyond the death of the entrepreneur.

Now, assume the case of an entrepreneur who runs a business as a sole proprietorship, partnership, or Subchapter S Corporation where profits flow through to his or her individual income tax return. Again, wage payments may have been made and should be projected as loss. Lost profits will appear on Schedule C of individual income tax returns and will be projected as economic loss into the future. These may cycle up and down with the level of economic activity, so that a simple average of past profits will be projected into the future. Chapter 13 more fully discusses this and related issues. Another problem is that small businesses and farms may consume a portion of their own goods, or they may understate their profits on income tax returns. In the former instance, replacement costs to survivors of formerly consumed goods should be calculated, if the business no longer operates. In the latter case, the fact that economic loss is understated because profits were understated



may be considered the “just reward” of those who did not accurately report tax liabilities.

Another issue for entrepreneurs is that reductions for average participation and employment rates of workers in general may not be applicable. It may easily be established that, with many years of operating a business, they would be employed in the business as long as they chose to operate it—before retirement, disability, death, etc. Thus, an upward modification of the Joint LPE probability is often appropriate. The defense may argue on the other hand that discount rates should be higher for entrepreneurs, executives, and professionals, since such “sophisticated” persons and their survivors may invest at higher interest rates.

Finally, entrepreneurs as well as professionals and executives may also differ from other persons in the impact of severe injuries on their future earning potential. The loss of an arm, for example, may not in any way reduce future earning power, whereas the same injury would significantly diminish the future earning capacity of certain manual, blue collar, and white collar workers.

## 7.8 Other “Special” Occupations

### A. *Military*

As stated, any occupation may have some special characteristics, but brief mention of a few other occupations may be worthwhile. For those in the military, for example, wage rate, fringe benefit, and even career growth data are easily obtained and very trustworthy. Military retirement earnings are significant and usually should be estimated as a stream of post-retirement income. Finally, significant earning capacity usually exists between the date of military retirement and ultimate retirement from all work; this must be estimated and may require the expertise of a vocational/employment expert. Much of the above also applies to federal civil servants.

### B. *Railroad Workers*

Railroad workers are another special class. They are generally unionized, and excellent wage and fringe benefit data are available from the union, the employer, and the Railroad Retirement Board. Serious injury to such workers is covered by a “fault” system of recovery unlike the “no fault” Workers’ Compensation system covering other workers. Thus, personal injury and wrongful death litigation involving economists is very common. Hours or days of annual work by railroad workers vary greatly and must be considered in each case, along with rates of pay per hour or day. Their average retirement age is lower than that of all other workers. Fringe benefits as a percentage of pay are higher than national averages, but employers do not contribute to workers’ compensation. Finally, the effects of income taxes on lump sum awards must now be considered in all of these cases.<sup>10</sup>

### C. *Other*

Pay rates and annual hours of work vary by geography, type of work, union status, and type of craft among craft workers. Ambulance drivers and other types of

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<sup>10</sup> See *NORFOLK AND WESTERN RAILWAY COMPANY V. KANDYTHE J. LIEPELT, ADMINISTRATRIX* 444 U.S. 490, 62 L.Ed. 2d 689, 100 S.Ct. 775 (1980). Also, see the Income Tax discussion in Chapter 3.

emergency or short-supply workers may have regularly-scheduled overtime work and pay.

Waitresses, waiters, car hops, taxi drivers, barbers and others have a significant portion of total compensation in tips, which they and/or their employer must estimate (and fully report). The list goes on, but the above surely indicates that type of occupation is a major variable in the approach to an estimate of economic loss.

### 7.9 Testimony

In the case of both females and minorities, the plaintiff's economist must recognize that, on average, earnings and work-life are lower than for males and whites. The expert must not be placed in jeopardy by "stretching" to assume all-sex or all-race averages. The exception may be a trend of increase in female participation rates, or females and blacks who are demonstratively above average for their statistical group. Of course, differences for these groups would only be highlighted in conservative estimates. And the economist should only talk about average females and blacks after explaining that this is the way federal statistics are categorized; otherwise females and blacks on the jury may be offended.

The defense, of course, would be sure that earnings, and work life, assumptions for the particular person either were consistent with statistics for the class or were inconsistent for a sound reason. Arguments may be presented that the rise in female participation rates toward those of males may halt and that male/female and white/black earnings ratios are not being significantly reduced. Use of traditional work-life tables for females should certainly be attacked, as the LPE work-life technique results in much lower and more sound estimates for "average" females. Appropriate questioning along these lines depends upon methods used by the plaintiff's economist.

For minors, it is ludicrous for the plaintiff's economist to testify to a single estimate of loss, unless at a very conservative "floor" of earning capacity. This is more of a problem in testimony the younger the child is, or was. Thus, the economist should provide a range of likely earning power, from a minimum to a (reasonable) higher amount, based upon characteristics of the parents, the child's grades and expectations, and perhaps the testimony of a vocational expert. Where required, or even allowed, a significant reduction in loss must be shown for the likely personal consumption expenditures of a deceased child (or other single person), had he or she lived. Perhaps more than in any other type of case, the direct testimony should be based on assumptions which are, and appear to be, very conservative.

The defense will nevertheless attempt to stress in cross examination the speculativeness of an estimate based upon a person without an earnings track record. The plaintiff economist should admit, when asked, that a projection based upon the earnings record of a specific person is more sound than the projection of a "statistical person." The plaintiff economist must admit that projections of economic variables from 0-60 years into the future, as for minor children of various ages, is subject to more possible error than projections of not so great a future period. Finally, questions may be asked about the costs of raising a child.

Again, with retirement-age persons, the plaintiff's economist needs supporting testimony for an assumed retirement age or for possible "other job" earnings after

retirement. The defense should show that average retirement age has been decreasing for males, ask about probabilities of less-than-full-time work, and attack any arbitrary assumptions about post-retirement earnings. For professionals, executives, and entrepreneurs, all elements of loss must be included and carefully explained. Average jurors do not earn this level of income, have sophisticated fringe benefits, or understand “additions to net worth” or “returns to capital.” Moreover, loss numbers for future years, with inflation included, can be absolutely unbelievable to jurors. If taking inflation out of the analysis and explaining lost “purchasing power” are ever important in testimony, this is the time.

The defense will attempt to make high annual loss numbers seem incredible, especially where the effects of inflation have not been removed. They may catch the economic expert in serious errors—if, for example, fringe loss percentages are applied to salary earnings above maximum bases or if clear returns to capital have not been excluded from losses. Further, in injury cases, they may be able to show that the type of physical injury does not reduce earning capacity to any discernible degree.

In other cases of “special” occupations, the plaintiff’s economist must ensure that special characteristics of the occupation and the particular person are considered. The expert would be subject to significant attack, for example, if he assumed that a carpenter in Alaska worked 3,000 hours per year or that an “average” railroad worker retired at age 65. Obviously, the defense prepares to exploit just such testimony in cross examination.

### **7.10 Conclusion**

Special cases have been reviewed, both in terms of the characteristic of the person—sex, race, age—and the characteristics of occupations. Tailored treatment may be important in data sources, methods of evaluating economic loss, and the handling of testimony.

