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PERSONAL INJURY LITIGATION- THE DIFFERENCE BETWEEN LOST EARNINGS AND LOST EARNING CAPACITY

by

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This paper[1] discusses one of many issues that can arise in calculating economic damages in personal injury litigation. The issue is the important distinction between projecting a person's future earnings and a person's future earning capacity. Earnings are defined as remuneration of a worker for services performed during a specific period of time.[2] When projecting future earnings the economist is projecting the amount the person would have earned but for an injury. When projecting future earning capacity the economist is projecting the amount the person could have earned if he had chosen to maximize his earnings.

In litigation where the injured party remains alive and able to receive a damages award, the correct measure of damages is loss of future earning capacity: the amount the injured party could have earned had the injury not occurred less the amount he could earn given the physical or mental limitations resulting from the injury. When the injured party is deceased, the measure of damages in a wrongful death case is the amount of support the survivors would have received from the injured party. The starting point in calculating the amount of support is the projected earnings of the deceased: the amount the deceased would have earned and from which support could have been paid to the survivors.

Whether the difference between projected earnings and projected earning capacity is large or small depends on the demographic characteristics of the individual (e.g., age, gender, education, race/ethnicity, aptitudes, interests, physical limitations) and their individual life choices (e.g., child care, retirement plans, choice of occupation). When the injury is to a young person who has not established a career and perhaps has not completed his formal education, the economist must rely more heavily on statistics for the average person with the same demographic characteristics of the injured party. When the injury is to an older person who has a lengthy work history and who has expressed his retirement plans, the economist can rely more heavily on the specific characteristics of the injured party and less on statistical averages.

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[2] Bureau of Labor Statistics. Glossary. Available at: http://www.bls.gov/bls/glossary.htm

Projecting Future Earnings for a Deceased Party Using Worklife Expectancy

An important concept in projecting future earnings is worklife expectancy, which is defined as the average number of years that a person will spend in the labor force, either working or actively looking for work, during the remainder of his life. By definition, then, it includes some periods of unemployment if the person is actively looking for work. It does not include periods where a person may be absent from the labor force, voluntarily or involuntarily, due to disability or other factors. [3]

The Bureau of Labor Statistics ("BLS") collects the data needed to calculate worklife expectancies for various demographic groups and periodically publishes the statistics.[4] There are individuals and companies that, in turn, use these data to make the necessary calculations and publish statistics on worklife expectancy. [5] While worklife expectancies do not change substantially from one year to the next, they have changed over time due to social and economic factors. Therefore, it is good practice to use published statistics based on the most recently available data.

When calculating economic damages using worklife expectancy statistics, there are some potential mistakes an economist should avoid. First, worklife expectancy incorporates the probability that a person will be alive from year to year and the probability that the person will be out of the labor force due to disability. However, since a person who is unemployed but seeking work is part of the labor force, a person can be involuntarily unemployed during part of his worklife. Therefore, an economist should not multiply a person's earnings when employed by the number of years of worklife expected to project future earnings. Each year's projected earnings must be reduced by the probability the person would be unemployed. As we discuss below, the BLS publishes historical statistics on unemployment rates for many demographic groups that an economist can use to calculate this factor. The BLS statistics can be combined

[3] Bureau of Labor Statistics. Worklife Estimates: Effects of Race and Education. Bulletin 2254. February 1986.
[4] Bureau of Labor Statistics. Current Population Survey (CPS). Available at: http://www.bls.gov/cps/
[5] Richards and Donaldson, Life and Worklife Expectancies, Second Edition, 2010

with projections of total unemployment rates published annually by the Social Security Administration to project the probability of future unemployment for the injured party.

Second, a person's worklife need not be continuous. There are periods before final separation when people leave the labor force voluntarily for education, to care for children or other relatives, because they are discouraged and have stopped seeking a job, or to pursue personal interests. Therefore, it is not reasonable to assume that a person 22 years old with a worklife expectancy of 36 years will be continuously in the work force for the next 36 years and then retire fully and permanently. For many people it is reasonable to assume final retirement will occur no sooner than the age they are eligible for full Social Security benefits, while others may state their intention to remain in the labor force even longer.

When there is a difference in the number of years of worklife expectancy and the number of years before assumed retirement, it is usually not appropriate for an economist to calculate future earnings assuming a continuous worklife with an "early" retirement. Unless the injured party stated specific intentions, a better practice is to compute the percentage of time prior to final retirement the person would be in the labor force and apply this percentage to projected earnings each year until final retirement. Whether this adjustment increases or decreases the present value of future earnings depends on whether the annual percentage increase in earnings exceeds the discount rate. If the annual rate of increase in earnings exceeds the discount rate, the adjustment will increase the discounted present value of earnings relative to the present value assuming a continuous worklife.

Projecting Future Earning Capacity for a Living Injured Party

When the injured party is alive, an economist should project earning capacity rather than earnings. A person's physical and mental abilities largely define his human capital. An injury can reduce those abilities and thus deprive the person of part or all of his human capital. The injury thus deprives the person of the opportunity to earn money, regardless of whether the person would have fully used his human capital. As such, one step in computing loss of earning capacity is measuring what an injured party would have been capable of making, rather than what the

person would have actually made, but for the injury. Worklife expectancy is the wrong concept for an economist to use to project a person's future earning capacity because it excludes amounts the person could earn if he was continuously in the labor force from the starting point of the projection until assumed final separation.

To arrive at a reasonable estimate of earning capacity, an economist should discount the person's potential annual earnings by three factors that are beyond the person's control. These are the annual probabilities of being alive, being able to work, and being employed. Federal agencies publish the statistics needed to calculate probabilities that are specific to demographic groups. To provide an example of how these factors affect a person's projected earning capacity, the tables below show the probabilities for a Hispanic male born in 1956 who is eligible for full Social Security retirement benefits at age 66.

Probability Alive

The probability of an individual being alive is based on data collected by the National Center for Health Statistics. [6] The United States Life Tables provide complete life expectancy tables for the United States by race, Hispanic origin, and sex, based on age-specific death rates.

For purposes of our example, we want to calculate the probability for each year that the person will survive to the next year. In the example we show the probabilities for each year until his assumed retirement at age 66. In 2013, the person is age 57. We use data from the life table for Hispanic males to fill in the column labeled "# Surviving" which shows the number of male Hispanic survivors out of 100,000 born alive for a specific age. The table below shows that the number of Hispanic males per 100,000 surviving to age 57 is 90,496. The factor for the current year will be 100 percent. This number decreases to 89,827 for Hispanic males age 58. We divide the number for Hispanic males age 57 by Hispanic males age 58 to determine the probability that the person will be alive the following year.

[6] National Center for Health Statistics, United States Life Tables, 2008, Vol. 61, No.3, September 21, 2012.

Table 1: Calculation of Probability Alive

Year	Age	# Surviving[7]	Factor[8]
2013	57	90,496	**100.00%**
2014	58	89,827	**99.26%**
2015	59	89,115	**98.47%**
2016	60	88,364	**97.64%**
2017	61	87,574	**96.77%**
2018	62	86,740	**95.85%**
2019	63	85,853	**94.87%**
2020	64	84,901	**93.82%**
2021	65	83,870	**92.68%**
2022	66	82,750	**91.44%**

Probability Able to Work

The probability that an individual is able to work is based on a statistical model RPC developed using data from the National Health Interview Survey ("NHIS"). The NHIS is conducted annually by the National Center for Health Statistics, Centers for Disease Control.[9] One of the questions included in this survey asks participants, *"Does a physical, mental, or emotional problem NOW keep [person 18+] from working at a job or business?"*[10]

RPC took the NHIS survey data and fitted it to find probit model coefficients for each factor. A probit multiple regression model[11] provides consistent estimates of the probability of being able to work at different ages and for different groups such as male Hispanics and so forth. The model controls for the following factors: AGE, MALE (1.0 for male, 0.0 for female), four categories or race and ethnicity (HISPANIC, WHITE, BLACK, OTHER), and five categories of educational attainment (<HS DIPLOMA, HS DIPLOMA, SOME COLLEGE, 4 – YR

[7] National Center for Health Statistics, United States Life Tables, 2008, Vol. 61, No. 3, September 21, 2012. Table 11. Life table for Hispanic males: United States, 2008
[8] Number surviving at each year divided by number surviving to beginning age 57.
[9] Centers for Disease Control and Prevention. National Health Interview Survey. Available at: http://www.cdc.gov/nchs/nhis.htm
[10] *Ibid.*
[11] A probit model is an econometric model in which the dependent variable can be only one or zero.

COLLEGE DEGREE, and GRADUATE DEGREE). All of the independent variables except AGE have only two possible values, one and zero. [12]

RPC used the statistical model to create tables showing estimates of the annual probability a person is able to work for ages 18-84 for white males, Hispanic males, black males, other males, white females, Hispanic females, black females, and other females, and for various levels of educational attainment. The table below shows the probability able to work for a Hispanic Male from ages 57 – 66 with various levels of education.

Table 2: Probability Able to Work-Hispanic Male (2009)[13]

Age	<HS	HS Diploma	Some College	College Degree	Graduate Degree
57	0.8924	**0.9453**	0.9578	0.9834	0.9903
58	0.8891	**0.9433**	0.9562	0.9827	0.9899
59	0.8858	**0.9413**	0.9546	0.9819	0.9894
60	0.8824	**0.9393**	0.9529	0.9811	0.9889
61	0.8790	**0.9371**	0.9512	0.9803	0.9884
62	0.8755	**0.9350**	0.9494	0.9795	0.9878
63	0.8719	**0.9327**	0.9476	0.9786	0.9873
64	0.8682	**0.9305**	0.9457	0.9777	0.9867
65	0.8644	**0.9281**	0.9438	0.9768	0.9861
66	0.8606	**0.9257**	0.9418	0.9758	0.9855

Probability Employed

Projecting future employment rates depends both on general economic conditions and on a person's individual characteristics. The Bureau of Labor Statistics is also the source for average historical employment rates (1 - historical unemployment rate) by age, race, and sex. [14] The average historical unemployment rate for the period 1984-2012 was calculated from

[12] All variables except for age are called dummy variables. These binary numbers can only have one of two values. In this model, those values are zero and one. Dummy variables are used as a means to compare two different groups or subsets of people.
[13] calculated using data from National Health Interview Survey, 2010 Centers for Disease Control and Prevention, National Center for Health Statistics
[14] Bureau of Labor Statistics: www.bls.gov. Household Data Annual Averages, Employment status of the civilian non-institutional population by age, sex, and race, 1984-2012.

quarterly figures published by the Bureau of Labor Statistics.[15] The Social Security Administration projects average annual unemployment rates for the United States economy as part of its annual projections on the financial health of the Social Security Trust Fund.[16] The Social Security Administration unemployment projections are used for future years. The "Relative Rate" adjusts the Social Security Administration's projections based on the ratio of (1 - projected unemployment rate) / (1 - average historical unemployment rate) [or the ratio of the projected employment rate / average historical employment rate]. This is necessary to adjust the average employment rates by age, race, and sex to appropriate percentages relative to the projected unemployment for the total labor force. Once we have the relative rate we multiply it by the average historical employment rate for the relevant demographic group to find the probability that an individual will be employed at a specific age.

[15] Bureau of Labor Statistics: www.bls.gov. Labor Force Statistics from the Current Population Survey, Unemployment Rate
[16] Social Security Administration: www.ssa.gov. OASDI Trustees Report, April, 2012, Table V. B2 - Additional Economic Factors

Table 3: Probability Employed for Hispanic Males

	2013	2014	2015	2016	2017	2018	2019-2020	2021-2022
Age	**57**	**58**	**59**	**60**	**61**	**62**	**63-64**	**65-66**
Average Historical Unemployment Rate (A)	6.147%	6.147%	6.147%	6.147%	6.147%	6.147%	6.147%	6.147%
BLS Actual / Social Security Projections (B)	8.10%	8.20%	7.40%	6.60%	6.10%	5.70%	5.50%	5.50%
Average Historical Employment Rate (C) = 1 - (A)	93.85%	93.85%	93.85%	93.85%	93.85%	93.85%	93.85%	93.85%
Projection Employment Rate (D) = 1 - (B)	91.90%	91.80%	92.60%	93.40%	93.90%	94.30%	94.50%	94.50%
Relative Rate (D) / (C)	97.92%	97.81%	98.66%	99.52%	100.05%	100.48%	100.69%	100.69%

Age	Average Historical Employment Rate	Average Historical Employment Rate Multiplied by Relative Rate							
50-54	95.70%	93.71%	93.61%	94.43%	95.24%	95.75%	96.16%	96.36%	96.36%
55-59	95.72%	**93.73%**	**93.63%**	**94.44%**	95.26%	95.77%	96.18%	96.38%	96.38%
60-64	95.73%	93.74%	93.63%	94.45%	**95.27%**	**95.78%**	**96.18%**	**96.39%**	96.39%
65-69	95.94%	93.95%	93.85%	94.66%	95.48%	95.99%	96.40%	96.61%	**96.61%**
70-74	96.51%	94.50%	94.40%	95.22%	96.04%	96.55%	96.97%	97.17%	97.17%
75-100	96.85%	94.83%	94.73%	95.55%	96.38%	96.90%	97.31%	97.52%	97.52%

Combined Annual Adjustment to Earnings

The three probabilities are multiplied to compute the probability a person will be alive, able to work and employed at each age. The resulting percentage should be multiplied by potential annual earnings to project the person's earning capacity. Table 4 shows that the effect of these factors is to reduce projected earning capacity by 12% to 18%.

Table 4: Combined Annual Adjustment to Earnings

Year	Probability Alive	Probability Able to Work	Probability Employed	Combined Annual Probabilities of Earning
2013	100.00%	94.53%	93.73%	88.60%
2014	99.26%	94.33%	93.63%	87.67%
2015	98.47%	94.13%	94.44%	87.54%
2016	97.64%	93.93%	95.27%	87.37%
2017	96.77%	93.71%	95.78%	86.86%
2018	95.85%	93.50%	96.18%	86.20%
2019	94.87%	93.27%	96.39%	85.29%
2020	93.82%	93.05%	96.39%	84.14%
2021	92.68%	92.81%	96.61%	83.09%
2022	91.44%	92.57%	96.61%	81.77%

Conclusion

To summarize, in personal injury litigation where the injured party is deceased, the damages to the survivors is the amount of support they could collectively have expected from the deceased. This amount of support is some portion of the amount the injured party would have earned. In projecting this amount, it is appropriate to use worklife expectancy statistics. To properly use these statistics the economist must consider first how the person's worklife would have been distributed over his life expectancy, and second, what adjustment is necessary to account for involuntary unemployment.

In personal injury litigation where the injured person is alive to receive an award, the measure of damages is lost future earning capacity. Earning capacity is the amount a person

could earn if he used his education, experience and abilities to the maximum in the labor market in which he resides. The economist should discount the person's potential annual earnings by the probabilities that he will be alive, able to work, and employed.

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