

ECONOMIC REPORT

The Value of the Economic Loss to the Estate
Due to the Death of Mr. Bruno Summers

Prepared by

Bruce D. Hann, Ph.D.
Department of Economics
University of Willow Bay
Ruston, Major 98416

Lost Earnings: Bruno Summer

This report provides an estimate of the value of the economic loss to the estate of Bruno Summers due to his death on September 7, 20XX. The estimate addresses economic losses due to his loss of earnings adjusted for expected future changes in those earnings, loss of value of fringe benefits and loss of value of non-market services. I have deducted from the estimated loss of compensation, an estimate of his consumption expenditures. The report is divided into four sections; the basic background information, a description of my projections of future compensation; a description of adjustments to future compensation losses; and finally my conclusions. Numbers in brackets refer to footnotes at the end of this report.

1. Assumptions and Background Data

Mr. Summers was born in (20XX- 29). At the time of his death he was 30 years old. He was a high school graduate. Mr. Summers entered military service after graduating from high school and served briefly overseas. Following his honorable discharge from the Army, he began working at the University Fitness Health Club. By age 24 he had worked his way to the position of manager of the club and was earning approximately \$40,000 per year with fringe benefits. At age 25, Mr. Summers purchased the club for \$80,000 with funds received from an inheritance.

Mr. Summers refurbished the old club and invested another \$70,000 in new equipment. Mr. Summers developed a loyal following by providing low impact exercise programs for overweight clients centered around the Whole Body Vibration system and positive body image programs. His clientele and club revenues had expanded rapidly over the past five years. With \$140,000 in loans from a local bank secured by assets from his inheritance, he had opened a new club in another part of town.

Shortly before his death, Mr. Summers had begun negotiating a sale of the clubs to Universal Gyms, a national chain of health clubs. Mrs. Summers reports that Mr. Summers planned to sell the business but continue managing the two clubs with a salary of \$60,000 per year plus benefits. Negotiations ceased at the time of his death. Since his death, the clubs have been operated by a hired manager, with oversight by Mr. Summers' wife. Financial data taken from Schedule C of Mr. Summers' tax returns are shown in Table 1.

At the time of his death, Mr. Summers was married, with two children. This was his second marriage. He had two children, Amanda age 12 and Ronnie age 8, from his first marriage to Priscilla. They divorced six years ago, and Bruno's parents got custody of the children because his ex-wife was an alcoholic. Bruno's children moved in with his parents, and Bruno visited them at the grandparents' house. In June 20XX, Bruno, Deborah and the children moved into a house that Bruno purchased.

2. Life Expectancy

Based on life expectancy data for white males prepared by a government agency, I have estimated his life expectancy at 47 additional years at the time of the accident. [1]

3. Work Life Expectancy

Mrs. Summers indicated that Mr. Summers planned to work until he became eligible for full Social Security benefits. Give the current regulations, I have assumed that his work life expectancy would be for another 37 years to age 67.

4. Future Wage Growth

Over long periods of time, wage and salary compensation have a tendency to increase along with increases in labor productivity and increases in general price inflation. Over the past 50 years, wages have increased at about 4.8% per year due to these two factors. [2] Any payment for future lost compensation must be adjusted for these expected increases.

5. Discounting Future Losses to Present Value

On the other hand, any payment today for a future loss must be adjusted for the fact that the payment today can be invested and earn interest. For example, if the interest rate is 5 percent, to compensate for a future loss of \$105 a year from now, the payment made today need only be \$100. The \$100 paid today will earn \$5 in interest over the year, which together with the \$100 payment compensates for the \$105 dollar future loss. Making reductions to the future lost amounts for the fact that current payments can earn interest every year to help make future payments is called discounting to present value.

There are many different interest rates observable in the financial markets and the choice of an interest rate to discount future estimated losses is important. Interest rates vary depending on the risk of the underlying financial instrument. For example, Federal government bonds have almost no risk of default compared to bonds issued by companies, so the interest rates on government bonds is lower than the interest rates on corporate bonds. The interest rate chosen to discount future earnings should be based on a financial instrument whose risk is comparable to the risk faced by a wage earner. I have chosen to use the interest rates available on three-year government bonds for the discount rate. This rate has averaged about 6.1% over the past 50 years. [3]

Interest rates, like wage rate increases, also vary with general price inflation. As inflation increases, interest rates tend to increase. Consequently, when inflation increases, and the interest rate increases, the discounting to present value increases and the amount needed to pay for future losses declines. Conversely, when inflation increases, the adjustment made for wage changes increases and the amount needed to pay for future losses increases. These two opposing effects of inflation on wage rate increases and interest rates largely offset each other. When we adjust interest rates for inflation we have a real (inflation adjusted) interest rate. When we adjust wage rate increases for inflation we are left with the real increases in wage rates, which is generally attributed to increases in productivity. Calculations in this report reflect real interest rates and real wage rate increases. Inflation has averaged about 3.9% over the past 50 years [4], implying a real interest rate of 2.2% and real wage increases of about .9% per year.

6. Estimated Income Loss

To calculate the lifetime income loss for Mr. Summers, I first determine a base income stream. In the year before his death, Mr. Summers' business showed profits of \$60,000 per year. As a sole proprietor, he reported this as personal income on his tax returns. I assume that this reflects his base earning ability. I assume that Mr. Summers would have continued in the position as manager of the University Fitness club or in a similarly compensated position. For projections of future income, I assume that his real earnings over his worklife will increase at .9% per year, the long term national average.

As individuals gain experience on the job, they become more productive and their earnings rise to reflect this. Earnings peak as individuals reach their forties and fifties. As they reach their sixties, their efforts in the work force begin to diminish due to illness or choice and near retirement, earnings tend to decline. I have adjusted the pattern of future earnings estimates for the age-earnings cycle of a male with a high school education. In 20XX - 3, the average annual earnings for males with a high school education, from age 30 to retirement at age 67 is 118% of the average earnings for males of age 30 [5]. Since Mr. Summers' earnings at age 30 were \$60,000, I have used \$70,800 as the estimate for his average base earnings over his work life.

I have made two other adjustments to the base income. Since Mr. Summers is subject to possible future unemployment, I have reduced his base earnings by 3.5%, the average unemployment rate for white males of his age group [6]. Since the earnings at the time of his death were in 20XX dollars, I have made an inflation adjustment to value those wages in current dollars. Inflation in the two years since Mr. Summers' death has been a total of 5%. [4] Adjusting for unemployment and inflation, I use a base income of $\$70,800 * 1.05 * (1 - .035) = \$71,738$. The projected real earnings over his life expectancy are shown in the attached Table 2. The estimated base earnings of \$71,738 in current dollars are increased at the real wage growth rate of .9% per year. The present value of these earnings is estimated at \$2,173,008, as shown in Table 2.

7. Additional Components of Economic Loss

There are four additional components to Mr. Summers' estate's net economic loss: the loss of fringe benefits, the effect of his consumption, the loss of his non-market services contributed to the household and the impact of his death on the value of the business.

7.a. Fringe Benefits

Mr. Summers was planning to work for Global Gym Corporation after he sold his business to them. He expected that the compensation package would include medical insurance payments, contributions to retirement plan, and production bonuses. Based on data for managers as reported by the Bureau of Labor, the value of these fringe benefits is estimated at 14.4% of base earnings or \$312,913. [7]

7.b. Consumption

The loss of earnings to Mr. Summers' estate should be adjusted due to the fact that had he lived, he would have consumed part of that income. The amount of his consumption would not represent a loss to the estate. I have reduced his earnings by an estimate of the amount of his consumption.

Family consumption tables found in Nelson and Patton [8]) indicate that a male adult's consumption varies with income and with the number of children in the household. Mr. Summers' children lived with Deborah and him and he was responsible for their support. Therefore, I have used estimates of consumption of the male head of household for a family with two children for the next nine years, until his first child turns 21, for one child for one year and for a family with no children for the remainder of his work life. The average fraction of income consumed is as follows:

Number of Children	Number of Years	Consumption Fraction
2	9	.17
1	4	.191
0	24	.232

$$(.17*9 + .191*4 + .232*24)/ 37 = .2125$$

The estimated annual consumption is $.2125 * \$71,738 = \$15,244$. The present value of consumption over his worklife is \$461,764 or 21.25% of earnings.

I assume that his Social Security retirement benefits and pension benefits will fund his post-retirement consumption.

7.c. Non-Market Household Services

In addition to his earnings, Mr. Summers contributed to his family by doing regular chores and maintenance around the house. Mrs. Summers states that he helped with cleaning the house, washing the cars, taking the cars in for maintenance, yardwork, paying bills, preparing information for tax returns, some shopping and banking. She reports that she does all those tasks now. The average hours spent by working men in household services is estimated at 12.9 hours per week. [9] I have valued these services at \$25 per hour, the cost of hiring a maid or yard worker from a local agency. When men retire, the average number of hours spent doing work around the home increases to 19.3 per week. I have estimated that the annual loss of value of household services is \$16,770 per year until Mr. Summers' expected retirement age and \$25,090 per year from retirement until the end of life expectancy. The present value of these services over Mr. Summers' expected life time is estimated at \$653,091. I have assumed that the cost to replace these service increases at the same rate as the real wage rate, or .9% per year. I have used a 2.2% real discount rate for these estimates.

7.d. Effect of the Death of Mr. Summers on the Value of the Business

At the time of his death, Mr. Summers was considering an offer from Universal Gyms to buy University Fitness Clubs. A written offer sheet dated before Mr. Summers' death showed that Universal Gyms offered \$300,000 for the two clubs, to be paid in three annual installments of \$100,000, and contingent upon Mr. Summers managing the clubs for Universal Gyms for the next two years at a salary plus performance bonus of \$60,000, plus fringe benefits. As condition of the sale, Mr. Summers was required to sign a non-compete agreement for 25 years. Universal Gyms withdrew the offer after learning of Mr. Summers' death.

In the years since Mr. Summers' death, Mrs. Summers has had to hire a manager to operate the clubs. Because of this additional expense, the clubs have earned only \$5,000 annual profits for Mrs. Summers in the one full year since Mr. Summers' death. The current depreciated book value of

assets of the business is \$50,000. Assuming the business now could be sold for the book value of assets, the estate has lost \$250,000 due to the reduction in value of the business.

8. Summary

The losses to the estate of Bruno Summers are due to the loss of his future earnings, fringe benefits and non-market services, and due to the loss in the value of the business he had built. I have reduced these losses for Mr. Summers' estimated consumption and have adjusted future values to present value. The estimated present value of lost compensation is \$2,173,008 for earnings and \$312,913 for fringe benefits. The deduction for consumption is \$461,764. The estimate of his lost household services is \$653,091. The estimated loss in value of the business is \$250,000. Total losses are \$2,927,248.

Summary of Losses to the Estate of Bruno Summers

Earnings	\$2,173,008
Plus: Fringe Benefits, 14.4% of earnings	\$312,913
Less: Consumption, 21.25% of earnings	-\$461,764
Value of Lost Household Services	\$653,091
Reduced Value of the Business	\$250,000
Present Value of the Loss to the Estate	\$2,927,248

For the Estate of Bruno Summers

Table 1. University Fitness Club: Summary Financial Data

	20XX	20XX+1	20XX+2	20XX+3	20XX+4	20XX+5
Revenues	\$100,000	\$150,000	\$200,000	\$275,000	\$355,000	\$355,000
Expenses, including wages	\$ 80,000	\$100,000	\$125,000	\$250,000	\$260,000	\$315,000
Net revenues	\$ 20,000	\$ 50,000	\$ 75,000	\$ 25,000	\$ 95,000	\$ 50,000
Interest on debt	\$ -	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 10,000
Taxes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Depreciation and amortization	\$ 10,000	\$ 15,000	\$ 15,000	\$ 20,000	\$ 25,000	\$ 25,000
Profits	\$ 10,000	\$ 35,000	\$ 60,000	\$ (5,000)	\$ 60,000	\$ 5,000

Table 2. Lost Income Estimates for Mr. Bruno Summers

Base annual earnings	\$60,000
Age-earnings cycle adjustment	1.18
Assumed unemployment	3.5%
Inflation adjustment 200x to present	5.0%
Adjusted base earnings	\$ 71,738
Real wage growth rate	0.9%
Real interest rate for discounting	2.2%

Year	Adjusted Base Earnings	Discount Factor: $1/(1+.022)^n$	Discounted Earnings
200x *	\$ 71,738	1	\$71,738
200x +1	\$ 72,384	1	\$72,384
200x +2	\$ 73,035	0.978	\$71,463
200x +3	\$ 73,693	0.957	\$70,554
200x +4	\$ 74,356	0.937	\$69,657
200x +5	\$ 75,025	0.917	\$68,770
200x +6	\$ 75,700	0.897	\$67,896
200x +7	\$ 76,381	0.878	\$67,032
200x +8	\$ 77,069	0.859	\$66,179
200x +9	\$ 77,763	0.840	\$65,338
200x +10	\$ 78,462	0.822	\$64,506
200x +11	\$ 79,169	0.804	\$63,686
200x +12	\$ 79,881	0.787	\$62,876
200x +13	\$ 80,600	0.770	\$62,076
200x +14	\$ 81,325	0.754	\$61,286
200x +15	\$ 82,057	0.737	\$60,507
200x +16	\$ 82,796	0.722	\$59,737
200x +17	\$ 83,541	0.706	\$58,977
200x +18	\$ 84,293	0.691	\$58,227
200x +19	\$ 85,052	0.676	\$57,487
200x +20	\$ 85,817	0.661	\$56,755
200x +21	\$ 86,589	0.647	\$56,033
200x +22	\$ 87,369	0.633	\$55,321
200x +23	\$ 88,155	0.620	\$54,617
200x +24	\$ 88,948	0.606	\$53,922
200x +25	\$ 89,749	0.593	\$53,236
200x +26	\$ 90,557	0.580	\$52,559
200x +27	\$ 91,372	0.568	\$51,891
200x +28	\$ 92,194	0.556	\$51,230
200x +29	\$ 93,024	0.544	\$50,579
200x +30	\$ 93,861	0.532	\$49,935
200x +31	\$ 94,706	0.521	\$49,300
200x +32	\$ 95,558	0.509	\$48,673
200x +33	\$ 96,418	0.498	\$48,054
200x +34	\$ 97,286	0.488	\$47,443
200x +35	\$ 98,161	0.477	\$46,839
200x +36	\$ 99,045	0.467	\$46,243
Present Value of Earnings			\$2,173,008

Data Sources:

[1] U.S Department of Health and Human Services, National Center for Health Statistics, National Vital Statistics Reports, U.S. Life Tables, 200XX-3, Volume 54, Number 14, April 19, 20XX+1. http://www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_14.pdf

[2] Economic Report of the President, 20XX+1, and earlier years, Table 46, Hours and earnings in private nonagricultural industries, 1959-20XX.
<http://www.gpoaccess.gov/eop/tables06.html>

[3] Economic Report of the President, 20XX+1, Table B-73, Bond Yields and Interest Rates, 1929-20XX.
<http://www.gpoaccess.gov/eop/tables06.html>

[4] Economic Report of the President, 20XX+1, and earlier years, B-60, Consumer Price Indexes for major expenditure classes, 1959-20XX. <http://www.gpoaccess.gov/eop/tables06.html>

[5] U.S. Census Bureau, Current Population Survey, 20XX Annual Social and Economic Supplement, Table: PINC-04. Educational Attainment—People 18 Years Old and Over, Total Money Earnings in 20XX-2, Age, Race, Hispanic Origin, and Sex.
<http://pubdb3.census.gov/macro/032006/perinc/toc.htm>

[6] Bureau of Labor Statistics, Current Population Survey of Employment, Unemployment for White Males by Age, 1954-20XX,
<http://www.bls.gov/cps/home.htm>

[7] Bureau of Labor Statistics, Survey of Employer Costs for Employee Compensation, July 20XX+1. <http://www.bls.gov/news.release/ecec.t01.htm>

[8] Ruble, Michael, R., Robert T. Patton, David M. Nelson, “Patton-Nelson Personal Consumption Tables: 2000-2001 Updated and Revised,” *Journal of Forensic Economics*, 15(3), 20XX-4, pp. 295-301.

[9] Robinson, John P., and Geoffrey Godbey, Time for Life, 2nd edition, Penn State Press, 20XX-9, page 105.

Entry 40: University Fitness Photographs (Photo A)-1 of 3



Entry 40: University Fitness (Photo B) 2 of 3



Entry 40: University Fitness (Photo C) 3 of 3

