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Measuring Human Life Value from the Courtroom to the Living Room

by

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Abstract: *In wrongful death litigation, human life value is measured daily in court. Insuring human life value is the primary purpose of life insurance; however, because agents have no way of measuring it meaningfully, the life insurance and financial services industry has tended to avoid addressing the very thing it insures. To fill the void the industry has focused on insuring needs. The author believes this has resulted in an insurance-consuming public that believes itself to be overinsured and, consequently, accepts risks much greater than they know. Technology allowing scientific evaluation of human life value at the point of sale will change this.*

Whether credit goes to Solomon Huebner, simple logic, or just plain common sense, it is generally accepted that the underlying purpose of life insurance is to protect the human life value of the insured. Nevertheless, there is little tangible evidence that this underlying purpose has manifested itself within the life insurance and financial services industry in any substantive way since Dr. Huebner first enunciated the concept. In fact, throughout the 20th century, the products and sales practices of insurance companies and most agents and financial planners suggest that the underlying purpose of life insurance does not include human life value. The result has been to skew the perspective from which consumers consider life insurance in a way that exposes families to risk much greater than even the industry suspects.

Perhaps the reason for this inconsistency between the purpose of life insurance and the actions of the life insurance and financial services industry is that measuring human life value in any meaningful way has not been a viable option until fairly recently. In the past, most agents could discuss the value of the insured's life (that which is being insured) in the most general terms. This is no longer true. Today, computer technology gives every agent and financial planner the capacity to perform a highly credible evaluation of a person's human life value at the point of sale in a matter of seconds. Nevertheless, the industry has been slow to utilize the available technology, continuing to encourage traditional ad hoc selling methods instead.

When agents and financial planners learn that they can now easily calculate their client's human life value, they frequently do not take advantage of this capability because they are uncertain how they would use the result. The industry has not adequately educated its professionals regarding the very thing they are insuring.

What Is Human Life Value?

"Human life value," as a term of art, is best defined for the life insurance industry as "the present value of the family's share of the deceased breadwinner's future earnings."[1] A more specific definition states that human life value is the present value of future earnings less taxes and expenses.[2]

Within the economics profession, "human life value" is not used as a term of art. What is used is the term "economic loss." The economic loss to the surviving family is the economic or financial contribution the decedent (breadwinner or not) would have made to the family, less taxes and the decedent's own consumption. In a court of law, this loss is called "economic damages." While human life value in life insurance and economic loss in economics are obviously identical in concept, economic loss suggests four necessary extensions to its life insurance counterpart: (1) loss and value must be defined in terms of loss or value to someone or something, (2) many people provide non-wage income and valuable services to the family in addition to earned income, (3) family members other than the breadwinner contribute economically or financially to the family, and (4) a person's value to the family does not have to be expressed as a single number such as a present value.

When speaking of life insurance, it can be confusing to consider human

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life value or economic loss without implicitly adding the phrase "to the family." For example, the income taxes a person pays are of value to society but not to the family. The volunteer efforts of a person may not benefit the family but do benefit the community or charity. The value or loss can easily extend beyond the family.

Economic loss includes non-wage income to the family such as fringe benefits. In a court of law, for example, a family is generally able to recover the cost of replacing the health insurance that would have been provided as part of the decedent's employment. Because such a loss can be significant, it should be included in calculating a family's loss in the event of death; it should also be included in calculating the human life value of an insured while he or she is still alive.

Another distinction between the insurance definition of human life value and economic loss is that a family member, breadwinner or not, provides services to the family that must be replaced if death occurs. The value of these services is included in economic loss. In a wrongful death lawsuit, a family can recover the cost of replacing the services that would have been provided by the decedent. Again, because the loss of services can represent a significant financial loss to the family, the value of the services should be included in calculating the person's contribution or economic value.

Economic contribution (if a person lives) and economic loss (when he or she dies) occur over time. Earnings, fringe benefits, services, taxes, and consumption — the economic effect of a person's life on his or her family — all occur over time. Human life value need not be expressed as a single number such as present value. Of course, as long as available life insurance products are limited to a single lump sum death benefit, the present value of that human life value will be an essential representation of it. Considering or defining human life value should not be limited, however, to a single present value number. Instead, the definition of human life value should be restated. A more appropriate definition of human life value for life insurance and financial planning purposes is the life-long stream of net economic contributions a person will make to his or her family.

Human Life Value And the Courts

In the days of Solomon Huebner, human life value, while an interesting concept, could not be measured with any certainty and, in fact, was not even well-defined. As the scientific literature surrounding the economics of human capital and human life value began to develop in the late 1950s and early 1960s, the legal profession was quick to make use of it, as courts typically require the best available scientific evidence as the measure of human life value.[3] Today human life values are measured in enumerable tort cases on thousands of lives, using sophisticated computer software based on this human capital literature in economics.

When a wrongful death suit is filed, both sides routinely retain economists to evaluate the human life value of the victim (i.e., the economic loss to the surviving family). This economic loss should not be confused with other elements of damages sought by (and frequently awarded to) plaintiffs. For example, in addition to recovering the human life value of the decedent, plaintiffs often claim other damages including pain and suffering, loss of consortium, loss of parental guidance, and punitive damages. In wrongful death cases, however, economists are chiefly concerned with economic damages, or human life value.

In spite of the substantial body of literature surrounding the nature, causes, and measurement of human life value, its use in judicial proceedings and the now routine nature of its computer-assisted evaluation, the life insurance industry, for the most part, continues to ignore this key concept. Those companies that do so, do so at their own peril.

Measuring Human Life Value/Economic Loss

As important as it is to evaluate human life value, it is equally important that it be done correctly. Basic arithmetic applied to simple assumptions about earnings growth and consumption proportions is not a measure of human life value and can be very misleading.

Instead, agents should remember that (1) earnings do not rise at a constant rate, (2) different occupations follow predictably different earnings paths, and (3) consumption and taxes are not simple percentages of the insured's earnings. In addition, agents must recognize that there is a scientific body of literature addressing the important elements of human life value evaluation. They should not ask a non-expert, such as a client, to provide anything more than occupation, earnings, and family data. The client cannot possibly be expected to know complex rates of change in future earnings, discount rates, changing consumption proportions, or effective tax rates.

To estimate an individual's human life value, the agent or financial planner must project the client's future earnings, consumption, and taxes as well as the value of fringe benefits and household services. These projections cannot be made on an ad hoc basis. For example, research shows that there is a complex yet predictable path that earnings typically follow throughout a person's career. Fortunately, there are techniques and data sources for such projections as well as computer software that allows life insurance professionals to make the projections as reliably as expert economists.

Measuring Human Life Value From the Courtroom to the Living Room

It is well-established that, for given income, occupation, and education levels, the rate of change in a person's earnings varies with experience or age. For example, two people of the same age with identical education and salaries will have different future earnings paths if they have different occupations. Furthermore, the rate of change in earnings typically declines with experience or age, other things being equal. In addition, inflation and economic productivity influence earnings growth.

Earnings can be projected using age-earnings profiles based on data from the U.S. Census. Each profile corresponds to an individual's occupation and education; the profile projects what the average person at that age in that position, and with that education and income, will most likely earn in the future. The specification of these age-earnings profiles has been referred to as, "...the most widely accepted empirical specification in economics."[4]

Employment-related fringe benefits, which must also be taken into account, are those which would have to be replaced after a death to keep the family financially whole. For most employees, health insurance is the most important. For others, stock options, company car, and club memberships may also be valuable or meaningful. Fringe benefits such as paid vacation time, sick pay, and life insurance would, of course, not need to be replaced by the family.[5]

Few would dispute the value of a homemaker's services to home and family, services which would have to be replaced if the homemaker were to die.[6] Working spouses, both male and female, also provide valuable services other than a paycheck. Published studies indicate the average number of hours per year individuals spend working around the house based upon such factors as income, education, age, and the number and ages of their children.[7] One can put a monetary value on these hours based upon the wage rates of domestic workers regularly published by the Bureau of the Census and the U.S. Bureau of Labor Statistics (BLS).[8]

Projecting income taxes requires performing tax calculations for each year in which the total family income is projected. Because the taxes on one spouse's earnings are affected by the earnings of the other as well as by any taxable non-wage income the family receives, the earnings of both spouses must be projected. These tax calculations are made using the tax tables, with appropriate indexing for inflation on brackets and exemptions, and from data published by the IRS regarding the average deductions of taxpayers by income level.[9]

The Bureau of Labor Statistics has conducted surveys of consumer expenditures since the late nineteenth century.[10] The information compiled from these surveys and other such studies can be used to estimate the effects of income on consumption as well as the effects of the ages of the individual and his or her spouse and the number and ages of children in the home.[11] An individual's consumption is calculated using data from these surveys and the projections of future family income. Where consumption is concerned, the earnings of a working spouse and the family's investment income are just as important as the earnings of the insured. Consumption is not simply a constant percentage of the earned income of the insured.

Projections of the income, taxes, and consumption (and hence savings) of various family members provide a type of financial crystal ball allowing a view of the family's financial future. For purposes of this discussion, of course, the estimate of the present value of the individual's human life value is of prime importance. It is this number that provides the best estimate of the amount that must be available to the family, such that, if death were to occur today, they would have the same financial future they otherwise would have had. Thus, a family can make an informed decision regarding how much of the financial risk from death they wish to cover with life insurance.

Insurance Industry Alternatives - Needs Analysis

Because human life value has essentially been ignored for the past 150 years, the insurance and financial services industry has created alternatives. The concept of needs-based selling represents one of the more popular forms of analysis. The premise underlying capital needs analysis is that a family has financial needs that are typically met with income generated by the proposed insured. Capital needs analysis can be described as a method for (1) identifying the needs a family would most like to continue covering after death discontinues the family's income, (2) estimating the funds necessary to cover the identified needs, (3) identifying existing sources of funds available to cover those needs, and (4) helping the prospect make trade-offs between the needs covered and the cost of insurance.

According to consumer expenditure surveys conducted by the Bureau of Labor Statistics, all expenditures fall into one of approximately 650 different categories, which represent the average "needs" of the consumer.[12] That is to say, the categories represent the ways in which people's incomes are utilized. Needs analysis identifies some of the more important categories of needs that the proposed insured wants his or her family to be able to cover in the event of death.

A fundamental inconsistency exists between needs analysis, as it is practiced, and life insurance. Human life value and needs analysis are not directly related. For example, two individuals can have identical human

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life values, yet one may have a mortgage and the other may not. Their debts may be totally different, and one may have no children to educate while the other may have several.

With auto insurance, if the car is destroyed or stolen, it can be replaced. With life insurance, when the insured dies, he or she cannot be replaced; only the financial contribution they made to the family is replaceable. These contributions determine the person's human life value. It is his or her net contributions which are insured, not the insured's life. A life is just the measuring event.

What is the human life value? It is the amount of money necessary to maintain the various uses of the insured's contributions to the family. This seems obvious, yet, unless the nature of human life value is considered, it is easy just to refer to the product as "life" insurance rather than its more informative name, which is "human life value" insurance.

Needs Analysis — Confusing the Industry, Confusing the Public

Since human life value is what is insured, it is no wonder then that, without establishing the human life value, the consumer is left with simply a suggested insurance amount that sounds very high. To someone with less than a thousand dollars in the bank at any one time, a $200,000 life insurance policy sounds enormous. It is simply a large amount of money without any context, even though the individual in question may have a human life value to his or her family in excess of one million dollars.

Investment in human capital in the United States totals more than 15 percent of gross domestic product each year, an amount which equals the total investment in physical capital.[13] This means that investment in human capital in 1995 exceeded $1 trillion.[14] The life insurance and financial services industry should study in depth this investment in human capital to determine the demand for its products, in turn impacting pricing, marketing, and other key business practices. Life insurance companies tend to look more at mortgages, debts, and the educational needs of children as indicators of the need for their products.

Without human life value as a guide, life insurance agents and financial planners relying on needs analysis miss important facts: (1) needs will be different in the future as family characteristics and finances change, (2) because these characteristics and finances are predictable, the future needs are predictable, and (3) those future needs must be covered with today's insurance. Needs analysis identifies the needs of a young family with a breadwinner just beginning his or her career quite differently than it will the needs of that same family several years later. This is because, as a result of a significantly higher income, the family's standard of living will be higher in the future. The family will live in a larger house, drive more luxurious cars and, in general, have more expensive tastes. If the breadwinner dies early, the family will only achieve this future lifestyle with adequate life insurance. By ignoring these future changes, needs analysis in isolation would leave the family underinsured.

One of the country's largest life insurance companies has a page on the World Wide Web where several methods are listed for determining how much life insurance an individual needs. One of those listed is human life value, another is needs analysis. Leimberg and Doyle add a third alternative, "rules of thumb."[15] Human life value is not an alternative to needs analysis or rules of thumb, however. It is the thing being insured and, therefore, is the starting point in financial planning or life insurance discussions. Consequently, needs analysis and rules of thumb are alternative methods for determining how much of the human life value to insure.

Needs Analysis — Misunderstanding the Current World

If the total amount of insurance and other post-death capital received is equal to the amount determined by needs analysis, the identified needs can be covered. However, satisfying those needs is not the same as leaving the family "in their current world." Even if the family has sufficient funds to remain in the same house and drive the same car, the house and the car are just parts of the family's overall world. That world consists of all ways in which the family uses the family income. If other parts of the family's "world" change (annual savings, vacations, entertainment, clothes, and gifts), the world has changed. The house and the car do not fit the new world and might be sold to make room for improvements in other parts of the world.

Consider what it means to determine the amount of insurance necessary to leave the family in their current world. A widow and her children can continue to live in their own world if they can have and do all the things after the breadwinner dies that they had and could do before. This is also referred to as "maintaining their standard of living." Financially, this means that the exact funds are available for use by and/or for each family member after the death as were available before the death.

In wrongful death litigation, it is often necessary to estimate the loss of support to individual family members, rather than to the family as a whole. These same techniques can be applied in life insurance analyses to determine the amount necessary to maintain the current standard of living for the family while children are in the home and for the spouse when the children are grown.

Maintaining the same standard of

living means that each family member is able to spend the same amount now and in the future as he or she is spending presently. Arithmetically, this amounts to the net contribution of the insured in the current year (earnings, fringe benefits, and services less taxes and his or her consumption) for every year into the future, adjusted for inflation. Table 1 illustrates the portion of human life value that should be insured to maintain the family's current standard of living.[16] The amount of insurance necessary to keep the family in its current world, as a percentage of human life value, is not small, especially for older insureds.

In each case, the insureds are in the same occupation earning $50,000 annually (with fringe benefits equalling $7,500). Without any improvement in standard of living, the family of the 40-year-old professional in this example would need life insurance equal to 80 percent of his or her human life value to leave the family in its current world. For this individual, the insurance amount is over 15 times earnings — an amount many companies would refuse to write.

Note that the percentage generally increases with age. This result reflects a balancing of two forces: (1) other things being equal, the further into the future the increases in standard of living occur, the lower their "present value" (i.e., the lower their impact on the amount of capital required if death were to occur today); and (2) as the insured ages, the difference between current and future living standards diminishes. That is, the closer the current world comes to being "as good as it's going to get."

The Uninsured Portion of Human Life Value — The Family Deductible

Many insureds feel that they are worth more dead than alive. Ignorance of human life value has created the popular belief that people have too much life insurance. But just the opposite is true.

With life insurance, the family loses an amount equal to the human life value of the insured less the amount of insurance on his or her life. This amount that the family loses, the uninsured value or the amount for which they are self-insured, will be referred to as the family deductible. The family deductible is surprisingly high for most families.

A few years ago, *Money* published an article on life insurance requirements and concluded that readers should question the reliability of their insurance agent's recommendations.[17] The only agent in the magazine's survey to recommend an amount of life insurance close to the human life value of the hypothetical prospects was criticized for her "faulty analysis."[18] Articles like this support the over-insurance myth — that insureds are "worth more dead than alive." If the life insurance consuming public knew their true human life value, they would probably be surprised by the size of their family deductible. They likely would no longer believe the over-insurance myth.

Last year, the author selected wrongful death case files at random and noted the amount of life insurance on the decedent, net of accidental death, and credit card related benefits. The life insurance amounts were compared to the economic losses the families suffered in the cases. (Note that those with no life insurance were excluded.) The results for those *with* life insurance were as follows:

1. The average amount of loss was $1.29 million, and the average amount of insurance was $302,308. (Average family deductible is almost $1.0 million.)
2. The average percent of the families' losses covered by insurance was only 28 percent. (Family deductible averages 72 percent of human life value.)
3. Only 15.3 percent of the families had more than 50 percent of their loss covered by insurance.
4. The largest percentage of any one family's loss covered by life insurance was 65 percent.

Three interesting questions emerge from these statistics.

1. Did the insureds and their families know their family deductible was so high?
2. If they had known, would the knowledge have impacted their insurance coverage decisions?
3. What are the ethical and legal

TABLE 1

Age	Human Life Value (Economic Loss)	Coverage to Maintain the "Current World"	Coverage to Maintain Current World as Percent of Human Life Value
20	$2,876,647	$1,273,213	44.3%
30	1,630,255	1,099,016	67.4
40	959,364	767,123	80.0
50	531,501	503,908	94.8
60	178,862	178,284	99.7

obligations of the agent/adviser to inform them of the size of their deductible?

Agents/Advisers Can Now Help Consumers Make Informed Decisions

If the fundamental purpose of life insurance is to cover human life value, then it should surprise no one if ignoring it leads the industry astray. Without knowledge of the value being insured, consumers have been unable to make informed decisions about how much of that value they want to cover with life insurance and how much they wish to self-insure. A side effect of this has been a nation of consumers who believe they are overinsured.

For generations, professionals from the life insurance and financial services industry have played a critical role in protecting families from the financial loss associated with death. For most of that time, they have had to function without specific knowledge of the extent of the potential loss each individual family faced. Today, technology enables insurance agents and financial planners to educate their clients about the financial loss their families would suffer upon their premature death. With the knowledge of his or her human life value, the client can work with the agent/adviser to make informed decisions regarding the amount of that value that he or she wishes to cover with life insurance. **J**
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(1) Norma Nielson, Glossary of Insurance Terms, nielsonn@bus.orst.edu.

(2) Stephan R. Leimberg, and Robert J. Doyle, Jr., The Tools and Techniques of Life Insurance Planning 495 (1993).

(3) Jacob Mincer, A Study of Personal Income Distribution (1957) (unpublished PhD Dissertation, Columbia University), laid the groundwork for the new field known as the "economic analysis of human capital." Numerous researchers have continued to contribute to this now very well-established field. In fact, about 35 years after Mincer's dissertation, Gary Becker was awarded the Nobel Prize in economics for his work in human capital. For one of Professor Becker's first published works on the subject see Gary S. Becker, Human Capital (1964) published by the National Bureau of Economic Research. Interested individuals can contact the author for other citations related to all aspects of projecting human life value components.

(4) Kevin Murphy and Finis Welch, 8 *Empirical Age-Earnings Profiles*, J. of Labor Econ. 202 (1990).

(5) The U.S. Chamber of Commerce has published since 1947 the results of non-wage benefits surveys. See also U.S. Dept. Labor, Bur. of Labor Stat. on the same topic.

(6) Depending upon her family's total income level, however, this value may or may not exceed her consumption which would be netted out.

(7) W. Keith Bryant, et al., The Dollar Value of Household Work, Revised Edition (1992).

(8) Bureau of Census, U.S. Dept. Commerce, Earnings by Occupation and Education, 1990 Census of Population and Housing, SSTF 22A (1994); Bureau Labor Stat., U.S. Dept. Labor, Monthly Labor Review, Table 16 published monthly.

(9) *Statistics of Income, Individual Income Tax Returns 1992*, I.R.S. Pub. 1304 (1995).

(10) Bureau of Labor Stat., U.S. Dept. Labor, Consumer Expenditure Survey, 1990-91 at 1 (Sept. 1993).

(11) Bureau of Labor Stat. Consumer Expenditure Survey, 1992-93 (Sept. 1995); and Bull. No. 1570-2, Revised Equivalence Scale for Estimating Equivalent Incomes or Budget Costs by Family Type.

(12) Consumer Expenditure Survey, *supra* note 11, at 235-240.

(13) Gary S. Becker, *Economic Viewpoint: The Cost of Human Capital*, Bus. Week, Mar. 11, 1996, at 18.

(14) The gross domestic product, annualized after the third quarter of 1995, was $7.2972 trillion. Economic Report of the President 304 (Feb. 1996). Taking 15 percent of this yields $1.095 trillion.

(15) Leimberg and Doyle, *supra* note 2, at 17-18.

(16) For each age, the insured was assumed to be a male architect. It was assumed that he and his nonworking spouse were of the same age and had no children. The computer software applied to these facts performed the following analysis to estimate human life value at each age.

An age-earnings profile was created using the standard specification, applied to the data for architects, as discussed, for example, in Murphy and Welch, *supra* note 4. In addition to the age-earnings effect, an overall inflation rate of 3.5 percent was applied, along with an annual increase in labor productivity of 1.0 percent. The annual value of future fringe benefits was projected by assuming that the ratio of fringe benefits to earnings remained constant. It estimated the value of household services performed in each year by first taking the average time spent on household services for a childless couple of the same age as the architect and his wife in each year, as reported by Bryant, et al., *supra* note 7. These hours were then converted to dollar values in the system by applying the average hourly wage of male domestic workers, *supra* note 8, adjusted each year for economic productivity and inflation.

The system calculated after-tax income by applying the average value of itemized deductions taken by households with an income of $50,000 as reported by the IRS, *supra* note 9. The system then calculated consumption proportions derived from the *Revised Equivalence Scale for Estimating Equivalent Incomes or Budget Costs by Family Type*, based on each year's ages of both spouses and adjusted for the income effect on consumption derived from the Consumer Expenditure Survey, 1992-93, *supra* note 11. It applied these to its annual projection of after-tax income to determine the consumption and savings levels of both spouses. The result was a projection of future earnings, fringe benefits, services, taxes and consumption, from which the system calculated the future net contributions, or human life value, of the insured.

Finally, the system used a weighted average of then-current yields on investment-grade municipal bonds, approximately 5.52 percent, as an after-tax discount rate to convert the future stream of net contributions to a present value.

The current world was calculated as follows: The net contributions estimated for the current year were projected forward in time by increasing them at the rate of inflation, 3.5 percent in each year. These were then converted to a present value, using the same 5.52 percent after-tax discount rate.

(17) Walter L. Updegrave, *The Money Life Insurance Test*, Money, Jan., 1992, at 120.

(18) *Id.* at 129.