

ECONOMIC ANALYSIS IN PERSONAL INJURY & WRONGFUL DEATH CASES

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OVERVIEW

Economic Damages

Medical costs past and future

Loss of earnings (all forms of compensation) past and future

Benefits, including pension.

Possible reduction in Social Security, perhaps no loss, disability

Impaired earnings capacity

Retraining costs

Loss of Household Services

Punitive Damages

Economic analysis only in assessing defendant's financial condition

Hedonic loss -- loss of enjoyment of life: part of pain and suffering

Expert testimony usually inadmissible

Studies do exist re placing dollar values on life

The Calculations

Historic ('back pay') and Present Value of Future

Worklife issues

Ordinary

Modified for reduced worklife owing to the injury

Wage growth rate

Inflation rate

Discount Rate 'controversy'

Net discount rate

Tax issue

Mitigation of loss

Deduct certain specific collateral sources according to Civil Code.
(life insurance payments excluded)

Life Expectancy

Adjusted for the injury

"Lost years"

Consumption deduction

I. PRESENT VALUE (PV) OF FUTURE LOSS

"PRESENT VALUE" OF FUTURE LOSS (PV) is the lump sum payment today that is equal to a stream of future compensation—assumes lump sum is used to purchase financial instruments that will generate returns in an amount approximately equivalent to the total future compensation.

Discounting to present value: As with future medicals and all other lump-sum future damages awards, amounts recoverable for prospective earnings losses must be "discounted" (reduced) to present cash value for the probable period of disability. Broadly, "present cash value" is the amount of money which, together with investment

return at the highest yield rate consistent with reasonable security, would defray the economic losses plaintiff is expected to sustain in the future. [BAJI No. 14.70; Rest.2d Torts § 913A; Scognamillo v. Herrick (2003) 106 Cal.App.4th 1139, 1151, 131 Cal.Rptr.2d 393, 402]

Rationale: The law assumes that a lump-sum damage award may be invested by a plaintiff so as to eventually yield an amount equal to the plaintiff's gross losses. Theoretically, at least, were the lump-sum award not discounted to present value, the plaintiff would ultimately recover excessive compensatory damages (the gross amount plus the investment return on that amount). [See Rest.2d Torts § 913A, comm. "a"] (source: Flahavan, Rea & Kelly, Cal. Prac. Guide: Personal Injury, 2003)

Economic Analysis: An example

Stated in a mathematical formula, PV may be stated as follows:

$PV = \text{the Summation of compensation (annual)} \times (1 + g)^n / (1 + d)^n$

Where g is the annual growth rate of compensation, d is the discount rate, and n is the number of years of future loss.

As an example, assume $n = 3$, the annual compensation is \$10,000, $g = 3.65\%$, and $d = 5\%$

Note on terminology: the net discount rate is given by $d-g$. In this example it is 1.35%

Continuing, we then have:

$$\begin{aligned} & \$10,000 (1.0365)^1 / (1.05)^1 + \$10,000 (1.0365)^2 / (1.05)^2 + \$10,000 \\ & (1.0365)^3 / (1.05)^3 = \$29,208 \end{aligned}$$

II. The Main Components of the Analysis

A) Worklife

“Worklife” is a statistical average of the number of years a person will be working. It factors out the probability of death, sickness, child rearing, and leaving the labor force. Generally, the Worklife Expectancy Tables by the Bureau of Labor Statistics (BLS) are considered most authoritative. Recent worklife tables have not been published by BLS. Worklife years have changed particularly for women since the last BLS published Worklife tables. Most importantly, worklife years for women have increased. There are reliable worklife tables published or discussed in peer-reviewed forensic economics journals that may be used. Generally, these worklife tables do use raw labor data reported by the BLS of the United States federal government.

The flaws of using 'retirement' age or Social Security eligibility age are that these do not consider the above consideration of the expected worklife. Including an analysis using worklife is absolutely necessary, BUT since worklife is a statistical average and plaintiff may exceed expected worklife, it is reasonable to consider an alternative scenario of 'retirement' age in addition to the worklife scenario. There are other worklife expectancy tables that have been constructed that consider education levels, occupation and other aspects.

B) Worklife – modified to account for reduced expected worklife owing to the injury

If an injured party is able to return to work, but for fewer years than indicated by the expected worklife table, then this differential is part of the loss and should be evaluated in the analysis.

Sources: medical report, vocational rehabilitation report, other peer-reviewed studies.

C) Salary Base

In the peer-reviewed Journal of Forensic Economics 12(1), 1999, pp. 13-32, the authors of an article entitled "The Valuation of Earning Capacity Definition, Measurement and Evidence," state:

For the average injured worker, past history remains the most important source of factual information for pre-injury earning capacity... This earnings data is likely to have an impact on the eventual compensation award. This is true because past behavior is, after all, strong evidence of what a person was capable of doing in the past, and absent identifiable changes, ***strong evidence of what they would be capable of doing in the future. Actual earnings data is often the starting point for measuring capacity. If there is no information to the contrary, it is usually assumed that actual earnings demonstrate earning capacity*** (emphasis added).

This notion is bolstered by yet another peer-reviewed publication, Litigation Economics Digest. In an article entitled "Principles of Establishing the Lost Earnings Base," in Litigation Economics Digest 1(1), 1995, pp.45-61, the authors conclude, at page 59 "In choosing a lost earnings base, **forensic economists look to the specific earnings history of the individual, when available, and exercise judgment in determining the earning capacity that should be expected in future years.**

The analysis set forth in the two journal articles demonstrates the typical process for determinations of lost future earning capacity, which necessarily considers past earnings. The subject documents are plainly necessary for this purpose, and the experts should be permitted to rely upon such data, and opine accordingly.

Salary and generally compensation differentials are used as annual compensation basis for the economic loss computations in appropriate litigation matters.

Employment history, however, is not required in determining salary base. In other words, an injured party with no employment history is still entitled to compensation for loss of future salary, based on his/her earnings capacity.

D) Discount Rate

The higher the (net) discount rate, the lower the present value of loss.

Presently, I use the discount rate of 2.644%. This is the combined average annual yields of 3-year Treasuries, 5-year Treasuries, 7-year Treasuries, and 10-year Treasuries for the period 2001-2020 (the source is the *FederalReserve.gov*). This would be considered the risk-free rate of return. Using Treasury securities is necessary because they are default risk free. Using some historic average is justified to smooth out cyclical fluctuations.

Using short-term securities is justified to remove inflation risk that may occur with longer term Treasuries (bonds). It is not always financially prudent to 'lock-in' to a T-Bond when future interest rates are expected to rise due to inflation. (This lowers the bond price of the previously issued bond). *Given the very low Treasury Bill rates currently, I now advocate using Treasury Bonds of varied maturities (avoiding inflation rate risk).*

Note: for approximately a year (Nov. 2005 to October 2006), the yield curve had flattened and then became inverted. What this means is that the yield on long term Treasuries (bonds) was actually less than the short-term T-Bills. This rarely happens and when it does it makes the business news. Typically, the longer the date to maturity the higher the yield because of the economic principle of forgoing liquidity. The 'controversy' surrounding the selection of the (net) discount rate is 'much to do about nothing.' In actual fact, it is really the *net* discount rate that ultimately matters most (d-g).

There is no set method for ascertaining the appropriate discount rate; indeed, the parties are normally given great leeway in arguing how reduction of the award is to be calculated. [e.g., *Noble v. Tweedy* (1949) 90 Cal.App.2d 738, 747-748, 203 P.2d 778, 783] But until evidence is taken on the issue (or comparable judicial notice, below), no present cash value instruction may be given. [*Wilson v. Gilbert* (1972) 25 Cal.App.3d 607, 102 Cal.Rptr. 31]

Another issue to consider is the burden of proof regarding appropriate reduction to present value. No known reported California decision has squarely resolved which side has the burden of proving the appropriate reduction to present value. The result could conceivably go either way: Under a view that the reduction ultimately benefits the defendant (who thereby pays out a smaller lump-sum amount), arguably it is the defendant who should shoulder the burden of producing evidence on the issue. On the other hand, to the extent present value may be viewed as an element of compensatory damages, it is the plaintiff who, it could be plausibly argued, should have the initial evidentiary burden.

The National Association Forensic Economics peer-reviewed *Journal of Forensic Economics* devoted an entire issue (April 1989) to the discount rate controversy. Some of the opinions and information are summarized below:

In the article by Colella, a net discount rate of zero (total offset method) is supported. He states Alaska and Pennsylvania have legislated this.

An article by Conley is in support of net discount rate of 1.

In Falero's article, he supports the use of a variety of rates in his reports. Specifically, he supports the use of a short-term rate in all his reports. He suggests a 6-month T-Bill as the risk-free rate.

In the article by Fox, there is support for a weighted average discount rate that includes a 6-month T-Bill rate.

In the article by Ray, he argues against choosing a discount rate that has a maturity date that corresponds with the termination of future claims because this rate may change from the time of report to settlement. Plaintiff may incur loss. **He suggests a twenty-year average for 90-day T-Bills may be 'much more appropriate' (p.95).**

Slesinger in his article substantiates the disagreement among economists regarding the appropriate discount rate. He computes long-term average of the net discount rates for a variety of securities, representing a variety of risk levels including BAA rated corporate bonds. This range takes values from 1.35% to nearly 3%, representing different risk levels.

Continuing, in the article by Albrecht (*Journal of Forensic Economics* 6(3) 1993 pp. 271-272), support for a risk-free rate is given.

Further, in the article by Romans and Floss (*Journal of Forensic Economics* 5(3) 1993 pp. 265-266) the authors offer **four guidelines in the selection of a discount rate** in order to reduce the controversy. These are (1) the discount rate should be a default risk-free rate. This implies Treasury bond rates; **(2) the discount rate should be inflation risk-free rate. This implies a fairly short-term rate, such as Treasury Bills;** (3) the discount rate should be a tax-free rate. This implies a Treasury rate minus some effective tax rate; **(4) the discount rate should be an average over some reasonable time period since the use of short-term rates require reinvesting. The authors state the averaging period should be identical to the earnings growth period.** They argue that an average of three to five year Treasury bond rates would be at the high end of the band of discount rate selection. At the lower end, would be an average of Treasury bill rates or municipal bond rates. They favor fairly short term government rate with a tax adjustment and municipal bond rates which may, in part, account for this tax issue. (With either of these last two approaches, the discount rate is a lower value. The lower the value of the discount rate the higher the present value of future earnings.)

[See generally, Trevino v. United States (9th Cir. 1986) 804 F.2d 1512, 1519, cert.den. (1987) 484 U.S. 816; Jones & Laughlin Steel Corp. v. Pfeifer (1983) 462 U.S. 523, 541-546, 103 S.Ct. 2541, 2552-2555; Schiernbeck v. Haight (1992) 7 Cal.App.4th 869, 9 Cal.Rptr.2d 716, 721]

E) Growth Rate (of salary)

The higher the growth rate, the higher the Present Value of future earnings.

I typically use a historic twenty-year national average growth rate of some type of wage (that is, private sector nonagricultural wage or public sector) published by *BLS*.

Currently, I use 2.525% as the private sector nonagricultural wage average growth rate for 2001-2020. And I use 2.25% as the public sector (state and local) wage average growth rate for the period 2001-2020. For federal government, it is currently 2.443%.

Why not use past average wage growth rate of injured party?

Information may not be available.

The future is uncertain.

Retraining to another occupation.

Often the historic national average may be less than injured party's past wage increases. So, I duly note in my Report or in testimony, that a more conservative number is being used.

Why not use the inflation rate, as given by the Consumer Price Index?

The unfortunate reality is that for the average American wage growth has not been keeping up with inflation since approx 1975! This may be referred to as the phenomenon of *the falling real wage*.

Using the inflation rate, therefore, may overstate the loss.

Using this wage growth rate is more conservative (and more accurate/more astute) and should be duly noted in the Report and in testimony.

Effect of inflation: In arriving at a realistic gross award, the trier of fact is allowed to consider inflationary factors--i.e., that the purchasing power of the dollar is decreasing and that wages are increasing with the cost of living. The inflationary index factor, however, must be based on "sound and substantial economic evidence." Again, this generally requires the testimony of expert economists. [Rodriguez v. McDonnell Douglas Corp. (1978) 87 Cal.App.3d 626, 151 Cal.Rptr. 399] (source: Flahavan, Rea & Kelly, Cal. Prac. Guide: Personal Injury, 2003)

F) Growth Rate of Future Medical Costs

Typically, the medical expert or life care planning expert (in conjunction with the physicians) will provide economist with future costs of medical, home care or assisted

living needs. If medical care is less extensive, then the economist may be able to extract from the physician or hospital the current costs of procedures and medicine. In any event, the economist must perform a present value computation. The discount rate will remain the same as it was for the analysis involving the future loss of compensation.

The growth rate utilized, however, for these medical costs involving procedures, medical appointments and medicines should be the medical component of the inflation rate, not the inflation rate itself. Using the latter will understate the future costs.

When calculating the present value of future costs involving home care or assisted living facilities, then the growth rate utilized should be the wage growth rate as discussed above or historic average increase in the costs of these services.

G) Other Issues or non-Issues

Pension

Lost pension and other deferred compensation benefits may be recoverable as backpay. [County of Alameda v. Fair Employment & Housing Comm'n (1984) 153 Cal.App.3d 499, 509, 200 Cal.Rptr. 381, 386--fringe benefits properly included in backpay award (citing United States v. Lee Way Motor Freight, Inc. (10th Cir. 1979) 625 F.2d 918, 945--"A normal part of the backpay award should have been the inclusion of the company's health, welfare and pension benefits"); Ackerman v. Western Elec. Co., Inc. (ND CA 1986) 643 F.Supp. 836, 855, aff'd (9th Cir. 1988) 860 F.2d 1514--plaintiff entitled to full backpay award, which includes pension benefits]

Calculating loss: No widespread consensus exists on how to calculate these lost benefits. [See Baker v. North Central Dialysis Ctr., S.D. (ND IL 1987) 48 FEP 31, 36--cut-off when plaintiff obtains other employment; Ventura v. Federal Life Ins. Co. (ND IL 1983) 571 F.Supp. 48, 50-51--pension paid through normal retirement date; Blum v. Witco Chem. Corp. (3rd Cir. 1987) 829 F.2d 367, 374--lost pension benefits may be calculated as part of "front pay"] (source: Flahavan, Rea & Kelly, Cal. Prac. Guide: Personal Injury, 2003)

Deduct employee contributions to pension fund.

According to the forensic economics literature, we would say the best approach would be to compute the reduction in payout at the time of retirement, rather than employer contribution. This approach, however, is more complicated and time-consuming.

There is case law discussing diminished public sectors pensions as collateral source. See the collateral source rule given in *Mize-Kurzman v. Marin Community College Dist.* 202 Cal.App.4th 832 and *Russo v. Matson Nav. Co.* 486 F.2d 1018.

H) Social Security

The reduction in Social Security payout at retirement owing to the injury *may* be an issue if the injured party is young and unable to return to work. It is certainly inappropriate to consider this potential loss in employment matters. In personal injury matters it is less clear. Certainly any Social Security Disability payments must be deducted from any potential loss. Employee contributions must also be deducted

I offer the following references and case law in support of potentially excluding legally required benefits in personal injury:

Factor, McConaghy, and Phillips, *Litigation Economics*, 1997.

Ireland, Horner, and Rodgers, *Expert Testimony: Reference Guide for Judges and Attorneys*, 1998.

Roseman and Fort, *Journal of Forensic Economics*, 1992.

Taylor and Ireland, *Litigation Economics Review*, Fall 1996, pp. 79-88.

Fleming v. Nestor 363 US 603, 4L ed 2d 1435, 80 S Ct 1367 (1960)

Richardson v. Belcher, 404 US 78, 30 L Ed 2d 231, 92 S Ct 254 (1971)

Weinberger v. Wisenfeld, 65 Cal App 3d 136, 135 Cal Rptr 189 (1976)

Marriage of Nizenkoff, 65 Cal App 3d 136, 135 Cal Rptr 189 (1976)

Farquharson v. Travelers Insurance Company, Mich Appp. 329 N W 2d 484 (1982)

D) Unused Vacation

Payment for unused vacation time is recoverable as part of backpay. Vacation pay constitutes additional compensation for services rendered. [Henry v. Amrol, Inc. (1990) 222 Cal.App.3d Supp. 1, 4-5, 272 Cal.Rptr. 134, 136].

Backpay includes "not only the periodic monetary earnings of the employee, but also the other benefits to which he is entitled as part of his compensation." [Wise v. Southern Pac. Co. (1970) 1 Cal.3d 600, 607, 83 Cal.Rptr. 202, 207].

Nonforfeitable: California law prohibits employers from enforcing a "use it or lose it" vacation policy (unused vacation time not compensable and cannot be carried over to following year): "(W)henever a contract of employment . . . provides for paid vacations, and an employee is terminated without having taken off his vested vacation time, all vested vacation shall be paid to him as wages . . ." [Ca Labor § 227.3; see Henry v. Amrol, Inc., supra, 222 Cal.App.3d Supp. at 4-5, 272 Cal.Rptr.

Loss of Future Earnings ("Front Pay"): Damages may include, in addition to backpay, an award of the salary and benefits a wrongfully discharged plaintiff would have earned from the employment after the time of trial. [See *Pollard v. E.I. du Pont de Nemours & Co.* (2001) 532 U.S. 843, 848, 121 S.Ct. 1946, 1949; *Smith v. Brown-Forman Distillers Corp.* (1987) 196 Cal.App.3d 503, 518, 241 Cal.Rptr. 916, 924]. (source: Flahavan, Rea & Kelly, Cal. Prac. Guide: Personal Injury, 2003)

J) Household Services

Life care or vocation rehabilitation experts can provide to the economist cost information associated with the loss of household services (usually replacement cost). More often, I use published studies that estimate this loss. For the present value of future loss, the usual components apply. This category of loss, while small in value compared with the other categories, should not be ignored.

K) Mitigation of Loss

Alternative employment: Sometimes, the defense will concede that a plaintiff is incapable of returning to his or her former occupation; at the same time, it will argue plaintiff is able to undertake some alternative employment in mitigation of future damages. A plaintiff may in fact be capable of part-time work, or of rehabilitation to another type of work altogether. In such case, however, the costs of retraining, the income lost during the retraining and job-seeking, and the difference in earnings between the new and former jobs or occupations are all recoverable (**Impaired Earnings Capacity**). [See generally, Rest.2d Torts § 919; and *Kleinclaus v. Marin Realty Co.* (1949) 94 Cal.App.2d 733, 211 P.2d 582] [See *Rodriguez v. McDonnell Douglas Corp.* (1978) 87 CA3d 626, 151 CR 399; *Neumann v. Bishop* (1976) 59 CA3d 451, 130 CR 786; *Connolly v. Pre-Mixed Concrete Co.* (1957) 49 C2d 483, 319 P2d 343]

Reimbursement for impaired earning capacity does not require proof of actual earnings or income before or after the injury. [*Connolly v. Pre-Mixed Concrete Co.*, *supra*; *Gargir v. B'nei Akiva* (1998) 66 CA4th 1269, 1280, 78 CR2d 557, 564; *Rodriguez v. McDonnell Douglas Corp.*, *supra*]

Plaintiff must be prepared, however, to introduce evidence of his or her preinjury earning potential —i.e., qualifications, training or education for new job, promotion, etc.

In addition, there is no certainty that work in an alternative career will be available once a plaintiff acquires the requisite skills. Future labor market potentials will therefore have to be factored into the analysis. [See *Rodriguez v. McDonnell Douglas Corp.* (1978) 87 Cal.App.3d 626, 151 Cal.Rptr. 399]

Certain **specific collateral sources** need to be deducted from economic loss, according to Civil Code (life insurance payments received are excluded).

L) Taxes

The element of taxes is not an issue for Federal or State of California. Evidence of future income tax consequences is inadmissible. (*Brokopp v. Ford Motor Co.* (1977) 71 Cal.App.3d 841, 139 Cal.Rptr.88; *Rodriguez v. McDonnell Douglas Corp.* (1978) 87 Cal.App.3d 626, 151 Cal.Rptr. 399]

A plaintiff is not required to produce personal tax returns. (*Rifkind v. Superior Court* (1981) 123 Cal.App 3d 1045, 177 Cal.Rptr. 82; *Schnabel v. Superior Court* (1993) 5 Cal.4th 704, 21 Cal.Rptr.2d 200; *Webb v. Standard Oil Co.* (1957) 49 Cal.2d 509, 319 P.2d 621)

M) “Lost Years”

The ‘lost years’ is the period of time by which an injured party’s life expectancy has been diminished. It may be computed by the differential between normal life expectancy and the diminished life expectancy. The diminished life expectancy may be found in published studies or by medical experts.

All aspects of compensation need to be considered for these ‘lost years’ including the loss of household service. (*Fein v. Permanente Medical Group* (1985) 38 Cal.3d 137, 211 Cal.Rptr.368; *Hurlburt v. Sonora Community Hospital* (1989) 207 Cal.App.3d 388, 254 Cal.Rptr. 840. *Overly v. Ingalls Shipbuilding, Inc.* (1999) 74 Cal.App.4th 164, 175, 87 Cal.Rptr.2d 626, 632) (source: *Flahavan, Rea & Kelly, Cal. Prac. Guide: Personal Injury*, 2003)

N) Deduction for future living expenses: Plaintiff’s future economic damages are not reduced to account for his or her probable living expenses (so-called “personal consumption”) during that period of time. Stated otherwise, future economic benefits are determined on a “gross,” not a “net,” basis. While this arguably overcompensates a plaintiff, any attempt to quantify expected personal consumption, especially when a plaintiff is part of a family unit, “would introduce undesirable elements of speculation and uncertainty into an already difficult calculation.” [See *Overly v. Ingalls Shipbuilding, Inc.* (1999) 74 Cal.App.4th 164, 175, 87 Cal.Rptr.2d 626, 632]. There are, however, published personal consumption tables and surveys in peer-reviewed forensic economics journals that can be used in the alternative.

O) Punitive Damages

Economic analysis may be required only in assessing defendant’s financial condition. This may include computing net worth and/or business valuation. The latter, in particular, requires somewhat different methodology than what has been discussed herein.

P) Health Benefits

GENERALLY: Fringe benefits lost—use employer contributions. If unavailable or too difficult to obtain then use appropriate national averages. For instance, I have used as an example:

Loss of non-legally required benefits, estimated at 18% of salary, according to the United States Department of Labor, Bureau of Labor Statistics, *Employer Costs per Hour, September 2003*, the national average non-legally required benefits as a percent of salary is 18% This figure includes paid leave, supplemental pay, insurance, and retirement.

Recovery may be allowed for the replacement cost to the plaintiff (premiums plaintiff must pay to obtain substitute coverage), not merely the amount it would have cost the employer to provide such coverage. [Wise v. Southern Pac. Co. (1970) 1 Cal.3d 600, 607-608, 83 Cal.Rptr. 202, 207]

III. Other Issues in WD Cases

In California at least, only the heirs of decedent have a claim for loss. Mostly the same components of economic damages apply, as discussed above.

The plaintiff should include in addition, **burial and funeral expenses**, as well as loss of **expected gifts** to heirs to have been received from the decedent.

The issue of **deducting the personal consumption of decedent** may arise. See previous discussion on this. It is rather time-consuming and perhaps difficult to measure from the decedent's household information. It would only be an estimate even if household kept track of all of decedent's personal consumption expenditures.

At least in California, **income of surviving spouse** and heirs is not to be considered as an offset.

Also, in California and some other states, (injured) **undocumented workers** or their heirs entitled to amount that would have been earned in their country of origin.

Special Cases:

Death of Minor Child

Argument: No financial loss for parents. Cost of child rearing offsets any future economic loss (e.g financial support to retired parents).

Special circumstances may arise which may negate the above argument. Also factors regarding the minor child (gifted, parent's ed., parent's financial status) should be thoroughly reviewed.

Death of Retired Person (with no dependents living with decedent):

Similar argument: No significant, at least, financial loss to heirs

IV. Conclusion

In this article, I have attempted to outline many of the issues involved in properly valuing a personal injury and wrongful death cases. The factors involved may vary from case to case, and in some cases not all of these issues may arise. In cases involving more serious and long term injuries, however, an understanding of this area of personal injury practice is essential, and the use of an expert may be of great assistance to attorneys in seeking the most fair and accurate calculations involved in economic analysis.

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