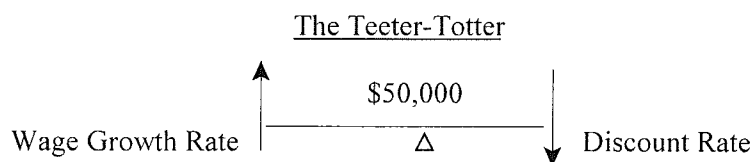


April 5, 2014

RE: Growth Rates Versus Interest (Discount) Rates

This newsletter focuses upon growth rates versus interest (discount) rates which are used to raise base-year loss estimates into the future and then to discount these future loss values to present values at trial. Let us use lost earning capacity estimates as a first example and assume the wrongful death of a 35-year old, male college graduate, whose base annual earnings loss is \$50,000. We often picture the two mathematical operations which must be applied to this earnings base as a child's teeter-totter...



A higher wage growth rate makes the future numbers higher and, taken alone, makes the loss estimate higher. Surveyed, annual wage growth rates, after price inflation has been subtracted, should be around 1 percent per year.

Discounting to present value is more complicated. A chosen interest (discount) rate is plugged into a formula for each future year, and the formula is the exact reverse of the compound interest formula. Future loss estimates are discounted to their present value equivalents when a lump sum is awarded at trial. These present values will then be invested and earn compound interest. At the future loss date, the (principal) lump sum for the year, plus all earned interest, will exactly cover the dollar loss. While forensic economists dramatically differ in how they choose their discount rates, surveyed averages are in the 2-2½ percent range (again with inflation removed); future numbers decline at a (downward) compounding rate. The higher the chosen interest (discount) rate, the lower is the present value loss.

So, the teeter (wage growth) effect compounds upward and the totter (discount) effect compounds downward. Historically, the discount rate effect has been larger, and economists define the “net discount rate” as the discount rate less the earnings growth rate. In our example, a net discount rate of 1.5 percent annually is 2.5 percent annually down less 1.0 percent annually up. The positive 1.5 percent net discount rate means that, in net, annual earnings losses are compounding downward by 1.5 percent per year. Yet, some economists opt for a “total offset” method, which means a net discount rate of 0 percent. A few use negative net discount rates, in which losses compound upward to a present value.

How much does it matter? Let us return to our 35-year-old deceased male, who has a worklife

expectancy to approximately age 63. Based upon the 2012 survey of forensic economists nationwide,* an average net discount rate in use is 1.34 percent annually. The present value of lost earning capacity would be \$1,126,506. If a total offset with a 0.0 net discount rate had been used, the present value loss would be \$1,350,000, or an increase of 19.8 percent.

Turning to medical and support care losses, the annual growth rates of costs may mean medical net discount rate values much closer to a total offset, and for prescription drugs and hospital room price indexes, the medical net discount rate is a negative number. One-half or more of life care plans, however, may involve support care that is not part of the medical cost components of price inflation. Let us now contrast a 20-year-old female with a need of \$500,000 per year non-medical support and assistance care; her life expectancy is to age 82. If a 1.34 percent net discount rate is used, the present value of loss is \$21,182,166. Alternatively, if a total offset is used, the present value of loss is \$31,500,000, which is an increase of 48.7 percent.

The new textbook *Foundations of Forensic Vocational Rehabilitation* (New York: Springer, 2014) is now available. George's Chapter 21 discusses worklife expectancy and Mike's Chapter 22 discusses the "handoffs" between vocational experts and forensic economists. Please give us a call or email if we can answer questions or be of help.

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*Frank L. Slesnick, Michael R. Luthy, and Michael L. Brookshire, "A 2012 Survey Study of Forensic Economists: Their Methods, Estimates, and Perspectives," Journal of Forensic Economics, Vol. 24, No.1, April 2013, pp 67-99.