ADDENDA: U.S. MATERIALS

Formuzis, P. and Pickersgill, J."Present Value of Economic Loss." Trial 21 (Feb. 1985): 22-27.

Funderburk, D.R. "Worklife Tables: Are they Reliable?" Trial 22 (Feb. 1986): 44-5 +.

Goodin, R.E. "Theories of Compensation." Oxford Journal of Legal Studies 9 (Spring 1989): 56-75.

Gross, Deborah L. "Comment Calculating Lost Future Earnings Under Federal Law: Copurts Must Consider Inflation as Well as The Earning Power of Money." Arizona State Law Journal (1986) : 487-519.

Hadley, L. and Rapp, J. "Estimating Future Lost Earnings." Trial 21 (February 1985): 28-32.

Mann, F.A. "On Interest, Compound Interest and Damages." Law Quarterly Review 101 (Janh. 1985): 30-47

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TRIAL v. 21, 1985

Present Value of Economic Loss

A Guide to *Jones & Laughlin v. Pfeifer*

Peter Formuzis and Joyce Pickersgill

In* Jones & Laughlin v. Pfeifer, *the Supreme Court reviewed the impact of inflation on damage awards under the Longshoremen's and Harbor Workers' Compensation Act. The Court concluded that a discount rate of between 1 and 3 percent could be applied by the trial courts.

The authors analyze nine key propositions in the Supreme Court's decision in* Pfeifer. *They critique each and amplify its implications for present-value calculations. They conclude with comments on the Alaska-Pennsylvania total offset method of calculating present value.

Although it is not generally thought of as one of the most intellectually challenging applications of economics to law, calculation of the present value of future wage loss is probably the most common. Despite what might appear otherwise, state and federal jurisdictions have promulgated case law that works to produce widely different results for the same set of facts. For example, in California[1] the income stream must be defined as before-tax; in Connecticut,[2] after-tax. In Alaska[3] and Pennsylvania,[4] supreme court decisions set the rate of future wage growth equal to the future rate of interest, and in the Ninth Circuit,[5] the rates are *not* to be automatically regarded as equal.

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In *Jones & Laughlin Steel Corp. v. Pfeifer,*[6] the Supreme Court turned its attention to the issues involved in fixing the present value of lost earnings in an inflationary economy. Its economic analysis is both comprehensive and sophisticated. Although binding only in the federal circuits, it will play an important role in the future evolution of case law in this area.

The Factual Basis

Howard Pfeifer was injured in the course of his work as a loading helper on a coal barge. The negligent defendant was required to pay him for his injury under § 5(b) of the Longshoremen's and Harbor Worker's Compensation Act.[7] At the time of the accident, Pfeifer was earning $26,065 a year and had a remaining work life of 12.5 years.

The present value of future earnings was set at $325,812.50 (12.5 years x $26,065). The trial court did not increase Pfeifer's earnings to account for future wage increases, and it did not discount the future earnings to present value by the force of interest. Instead, the district court followed the Pennsylvania Supreme Court decision in *Kaczkowski v. Bolubasz,*[8] which had held "as a matter of law that future inflation shall be presumed equal to future interest rates with these factors offsetting."[9]

The court of appeals affirmed the decision of the district court in *Pfeifer.*[10] The Supreme Court, however, vacated and remanded the case, holding that the district court could not consider itself bound to the total offset method for computing present value. Instead, it must make its own deliberate choice of the factors relevant for discounting a future wage stream to present value.

To facilitate the logical development of its decision, the Supreme Court separated the analysis into the relevant factors for an inflation-free economy and for an inflationary economy.

We analyze nine key propositions in the decision.

In an Inflation-Free Economy

Proposition 1

> Even in an inflation-free economy—that is to say one in which the prices of consumer goods remain stable—a worker's wages tend to "inflate."[11]

The court recognized three factors that cause wages to rise in an inflation-free economy: (1) increases in societywide productivity, (2) increases specific to the individual, and (3) shifts in relative wage shares due to collective bargaining.

Societywide productivity increases occur as the result of technological advances that increase the amount of real output of goods and services per hour of labor. Both the Bureau of Labor Statistics and the Department of Economic Analysis of the Department of Commerce have developed measures of labor productivity.

Many factors affect the measurement of labor productivity over any given time period. These include the stage of the business cycle; the rate of inflation; supply shocks, such as the sharp rises in oil prices in 1973 and 1979; and demographic changes, such as baby booms. When considering the history of past productivity to predict the future rate, one must examine that history in light of these events and their likelihood of continuing.

Over the period 1974-83, produc-

tivity increased at a 2.1 percent annual rate. It is useful, however, to separate the period into the subperiods 1947-73, 1974-82, and 1983-84. In 1947-73, productivity increased at a 2.8 percent annual rate; in 1974-82, it dropped to 1.1 percent. In 1983, it rebounded to 3.3 percent, and in 1984, to 4.7 percent.

The sharp drop during 1974-82 compared with the periods before or after can be attributed to four factors:

- The tripling of oil prices from 1974 through 1979 worked to reduce business productivity during the years when adjustments were being made toward more fuel-efficient methods.
- Double-digit inflation lowered the calculated productivity figures because it produced a statistical downward bias in the measurement of output.
- Recessions in 1974, 1975, 1980, and 1982 mark the 1974-82 period as the most recession-plagued nine years since the Great Depression.
- People born during the last baby boom began entering the labor market, and their entry reduced the overall level of training and experience of the labor force.

At least three of these factors have either been eliminated or are coming to an end: Oil prices have slowly fallen; inflation has been reduced; and the baby boom's impact is ebbing. The recession factor is probably less of a threat than it was during 1974-82, though one must always be cautious about predicting the timing and duration of recessions.

Table 1 shows the rate of overall labor productivity for the private business sector during the 36-year period from 1947 through 1983. The data show annual long-run productivity increases from 2.0 to 2.7 percent.

In the future, the Labor Department expects productivity rates to improve as the influx of new workers, resulting from the baby boom of the 1950s and 1960s, ends. The gradual aging of the labor force implies a growth in the overall levels of education, training, and experience, which would result in greater gains in productivity. This, together with the elimination of the special factors present during 1974-82, leads us to conclude that the outlook for reasonable productivity gains is bright.

Without introducing any special increase for the growing level of training and experience, past data alone would imply a future productivity increase of about 2.5 percent a year. This would equal the increase in real wages due to societal gains in productivity.

Proposition 2

> With the passage of time, an individual worker often becomes more valuable to his employer.... To reflect that heightened value, he will often receive "seniority" or "experience" raises, "merit" raises, or even promotions.[12]

The Department of Commerce has compiled a large amount of data that track the earnings by age of persons in a variety of occupations. This lifetime age-earnings relationship can vary substantially by type of occupation. For example, federal government employees generally advance one pay step per year within their GS grade. These increases result in increased compensation of about 3 percent a year. Many state, county, and city employees work under similar pay schedules. Although pay rates for many occupations are not determined by strict formula or set pay schedules, every occupation is characterized by an earnings-experience-age relationship.

In an inflation-free economy, this experience component of real wage growth should be added to the overall societal labor productivity gains discussed under proposition 1. If, for example, the experience gains were set at 2 percent a year, and if societal productivity gains were set at 2.5 percent a year, total wage growth would be 4.5 percent a year.

Proposition 3

> Through collective bargaining, workers may be able to negotiate increases in their "share" of revenues, at the cost of reducing shareholders' rate of return on their investments.[13]

While correct in principle, the prediction of the future strength of labor unions and their impact on the distribution of the relative shares of wages, rent, interest, and profit is difficult to forecast and probably beyond the current state of empirical work in economics.

Proposition 4

> Since the damage award is tax-free, the relevant stream is ideally of *after-tax* wages and benefits.[14]

The use of net instead of gross wages is probably the most striking difference the economist notices when preparing a present-value analysis for a Federal Employer's Liability Act or Federal Tort Claims Act case rather than one to be heard in a state court. Most state jurisdictions either limit the relevant wage stream to gross dollars or permit the calculation in terms of both gross and net.

The preference for gross dollars has partly rested on the theory that in-

Table 1

Labor Productivity in the U.S. Economy 1947-1983

Years	Private Business
1947-77	2.7
1953-77	2.5
1960-77	2.5
1953-83	2.1
1960-83	2.0

Source: *Economic Report of the President 1984*, at 266.

come tax payments are a matter solely between the taxpayer and the government and are of no legitimate concern to the defendant. The defendant is not allowed to save on any funds the government may have lost. In a Federal Tort Claims Act case, however, the government is both the recipient of the income tax and the tort-feasor. This accounts for the federal government not considering the payment of income taxes as a collateral issue and for its preference for net income rather than gross.[15]

The distinction between net and gross income is important not only for its impact on the size of the wage stream being discounted to present value, but also for its effect on the appropriate discount rate. If after-tax wages are used, the plaintiff must be allowed sufficient principal to earn an *after-tax* return, which together with the principal is capable of duplicating the after-tax loss of wages. This was made explicit in *Norfolk & Western Railway v. Liepelt*,[16] *DeLucca v. United States*,[17] and *Pfeifer*.[18]

To achieve economic efficiency, the method of calculating the amount of damage should result in an amount equal to the damage caused. Gross income is a better measure of economic damage caused than net. The adoption of net income as the preferred measure allows the defendant to pay less than the cost of the damage caused. The reduced payment limits the tort-feasor's incentive to behave more safely, to produce safer products, or to provide safer working conditions.

Proposition 5

> The discount rate should be based on the rate of interest that would be earned on "the best and safest investments."[19]

The Court held that once the assumption of working life is made, the plaintiff is "entitled to a risk-free stream of future income to replace his lost wages."[20] As a result, the discount rate must not include any allowance for the market's perception of default risk. If strictly adhered to, this would limit the acceptable class of investments to U.S. government securities.

Proposition 6

> If forecasts of future price inflation are not used, it is necessary to choose an appropriate below-market discount rate.... If full account is taken of the individual and societal factors (excepting price inflation) that can be expected to have resulted in wage increases, then all that should be set off against the market interest rate is an estimate of future price inflation. This would result in one of the "real interest rate" approaches. . . .[21]

The "below market discount rate" referred to by the Court is the real rate of interest. It is equal to the market rate less the anticipated rate of inflation. The interest rate on government securities in an inflation-free economy is by definition equal to the real rate of interest. Because we have not lived in an inflation-free economy, the real rate must be estimated by subtracting

from the market rate the interest component that reflects inflationary anticipations.

The logic of the real-interest-rate approach requires that the plaintiff earn the assumed real rate of interest over the remainder of the working life. In this regard, a point touched on by the *Pfeifer* Court, but apparently not recognized for its significance, is the issue of the appropriate maturity of the investment. Only short-term investments allow investors the opportunity to periodically reinvest their funds at then-current market rates, which contain the latest experience and projections of future inflationary conditions.

An investment in long-term government bonds will lock in a guaranteed *nominal* yield, but it will not lock in a guaranteed *real* yield. The real yield will be known only after the bond matures and the actual rate of inflation is a historical fact. One is far more likely to earn a predictable average real return by investing short term. Long-term investments lock one into the nominal yield available at the time the investment is made with no opportunity to adjust the yield as economic conditions change. The wisdom of short-term investments over long-term ones is analogous to the practice of banks and savings and loans that prefer to issue variable-rate mortgages and consumer loans rather than fixed-rate loans.

> The behavior of the real interest rate differs markedly from that of the nominal rate. Over the full period, 1948-82, the average real interest rate is a very small number, 0.6% per year. Further, roughly similar averages appear for the first and second halves of the period: 0.2% for 1948-64 and 1.0% for 1965-82. Overall, if we do not give undue weight to the high real rates for 1981-82, the data since 1948 suggest no clear long-term trend in the real rate.[22]

Assuming a plaintiff held some mixture of government securities with maturities between three months and three years, a real discount rate in the area of 1.0 to 1.5 percent would appear reasonable.

In reference to the real interest rate, the *Pfeifer* Court recognized that the rate is not perfectly stable over time. With apparent reference to statistics related to before-tax real rates, it concluded, "We do not believe a trial court adopting such an approach in a suit under § 5(b) should be reversed if it adopts a rate between one and three percent and explains its choice."[23]

An unfortunate error or oversight regarding real interest rates pervades the *Pfeifer* opinion. When referring to numerical magnitudes, the Court does not quantitatively distinguish between the before- and after-tax real rates of return. All the economic and statistical data it cites regarding the numerical averages for real interest rates is confined to before-tax returns. It then mistakenly applied the figures in an after-tax setting as if the two rates were equivalent. After-tax rates, for example those on tax-free municipal securities, however, are significantly below comparable-maturity U.S. government securities where the interest is subject to tax. The real after-tax interest rate is considerably less than the 1 to 3 percent the Court refers to.

Table 2

Real Interest Rates on Selected U.S. Government Securities

Years	Three-Month Treasury Bills	Three-Year Treasury Notes
1953-77	.6%	1.4%
1953-63	1.1%	1.9%
1960-77	.5%	1.3%
1953-83	.8%	1.7%
1960-83	.8%	1.7%

Table 2 records the actual real rates of interest earned on U.S. government securities between 1953 and 1983.

The University of Chicago's Robert J. Barro, one of the country's leading macroeconomists, wrote with regard to the real rate of interest on 3-month bills issued by the U.S. treasury that:

Proposition 7

> Since under *Liepelt* ... the lost stream of income should be estimated in after-tax terms, the discount rate should also represent the after-tax rate of return . . . .[24]

In general, the use of an after-tax discount rate is appropriate only if the wage stream being discounted is also expressed in after-tax dollars. In this way the award could generate an after-tax stream of interest that, together with the award itself, would be able to duplicate the loss of after-tax earnings.

With regard to an investment medium, prime-grade general-obligation municipal bonds would come closest to meeting the requirement that no default risk exist. Typically, a bond would be issued by a state, with interest payments and principal backed by the state's full taxing authority.

Table 3 presents the real interest rates on one- and five-year prime-grade general-obligation municipal bonds for 1953-83. The nominal rates were taken from a series compiled by the investment house of Salomon Brothers and converted to real rates on the same basis as in Table 2.

Assuming the plaintiff held some mixture of municipal securities with maturities between one and five years, a real discount rate of −0.5 percent would be reasonable.

Using the information outlined in the first seven propositions, here is how to compute present value for an inflation-free economy.

- Determine the plaintiff's present basic earning capacity and expected work-life. For example, this might be $20,000 per year with a work expectancy of 30 years. If calculating in after-tax dollars, the $20,000 must be reduced by the average tax rate, say 12 percent, to $17,600.
- Determine the rate of real wage growth by adding the societal gain in productivity to the individual seniority, experience, and training factor. From the statistics presented here, the productivity increase could reasonably by placed at 2.5 percent. After a statistical analysis of the plaintiff's occupation, assume a 1.5 percent rate for the individual seniority experience and training factor. This would yield

Table 3

Real Interest Rates on Prime-Grade General-Obligation Municipal Securities, 1953-83

Years	One-Year Securities	Five-Year Securities
1953-77	−1.1%	−0.4%
1953-63	−0.2%	0.7%
1960-77	−1.3%	−1.1%
1953-83	−1.3%	−0.7%
1960-83	−1.7%	−1.1%

a total rate of real wage growth of 4.0 percent a year.

- Discount to present value using the real rate of interest on short-term riskless investments. If the calculation is based on gross dollars, a real discount rate on government securities of approximately 1.5 percent would be reasonable. If based on after-tax dollars, a real discount rate derived from municipal securities of −0.5 percent could be used.
- Applying these factors would yield a present value of $882,714 in gross dollars or $1,100,011 in after-tax dollars. The after-tax figure is greater because the force working to reduce present value caused by using net income is swamped by the increasing effect of the lower discount rate on municipal securities relative to U.S. governments over a 30-year work life.

If the total offset rule propounded in the Alaska case of *Bealieu v. Elliot* [25] and followed in *Kaczkowski* [26] is applied, a substantial underestimate results. In this circumstance, the present values would be $600,000 in gross dollars and $528,000 in after-tax dollars, or only 68 percent and 48 percent of the figures found by application of the guidelines in *Pfeifer*.

The Extension to an Inflationary Economy

Proposition 8

> Unfortunately for triers of fact, ours is not an inflation-free economy. Inflation has been a permanent fixture in our economy for many decades, and there can be no doubt that it ideally should affect both stages of the calculation described in the previous section.[27]

Inflation affects both the rate of increase in money wages and the nominal rate of interest. Over the long run, the rate of wage increase for the economy as a whole will equal societal productivity gains plus the rate of price inflation. For the individual, an additional seniority-experience component should be added. If, for example, price inflation averaged 8 percent over the next 30 years, the rate of nominal wage growth in the above example would be 2.5 + 1.5 + 8.0 or 12 percent a year.

The nominal or market interest rate also includes an amount for anticipated inflation as lenders work to achieve a given real return. When dealing with short-term securities, anticipations about future inflation and actual inflation have been shown to be in close agreement. If inflation then averaged 8 percent, the market interest rate would average 1.5 + 8.0 or 9.5 percent. The *Pfeifer* Court specifically warns against using inflation on only the discount side of the calculation, a practice not all that uncommon.

> The effect [is] to deny the plaintiff the benefit of the impact of inflation on his future earnings, while giving the defendant the benefit of inflation's impact on the interest rate that is used to discount those earnings to present value.[28]
>
> . . . .
>
> In calculating an award for . . . lost earnings . . . the discount rate should be chosen on the basis of the factors that are used to estimate the lost stream of future earnings.[29]

Therefore, if the impact of inflation is ignored when calculating future wages, its influence should also be removed from the market interest rate. If it is removed, we end up with the real rate of interest, or what the Court referred to as the "below market discount rate."

Proposition 9

> Since specific forecasts of future price inflation remain too unreliable to be useful in many cases, it will normally be a costly and ultimately unproductive waste of. . . resources to make such forecasts the centerpiece of litigation . . . . For that reason, both plaintiffs and trial courts should be discouraged from pursuing that approach.[30]

It is scientifically impossible to predict the future rate of price inflation except for that short period of time already influenced by present and past monetary policy. Inflation is principally controlled by actions of monetary authorities, who, in turn, often respond to unpredictable political factors.

Using the information in propositions 8 and 9, we can draw these conclusions for calculating present value in an inflationary economy:

- Price inflation is assumed to equally impact both the wage growth and discount sides of the calculation. Therefore, future price inflation can be eliminated from both aspects of the calculation without affecting the final result.
- The litigating parties should express the rate of future wage increase in real terms as the sum only of the percentage increase due to societal productivity gains and the percentage increase due to seniority, training, and experience. Similarly, the "below market discount rate," i.e., the real interest rate, should be used for discounting.
- With price inflation eliminated from both sides of the calculation, the procedure is to increase wages by the real rate of wage growth and to discount by the real rate of interest. Under this procedure, the valid method for an inflation-free economy is identical to the one for an inflationary economy.
- The result is that the present value calculated with this method is valid regardless of what the future rate of inflation turns out to be.

The "Total Offset" Method

The *Pfeifer* Court recognized that a "substantial body of literature sug-

gests that the [total offset] rule might even *under* compensate some plaintiffs."[31] This point was illustrated in the example in the discussion following proposition 7 and has been made clear in studies by several economists using a variety of methods, statistical series, and time periods. All found an excess of wage growth over interest *before* adding anything additional to the wage growth to account for the individual seniority and experience factors. Table 4 summarizes these studies that measure the rate of wage growth relative to the rate of interest on U.S. government securities.

The difference between wage growth and interest shown in Table 4 can also be viewed as the difference between real wage growth and real interest since by the process of subtraction, the inflation embedded into each term is removed. These differentials are consistent with the real productivity wage growth rates less the real interest rates revealed in Tables 1 and 2, e.g., 2.5% - 1.5% = 1.0%.

The weight of empirical evidence strongly suggests that the total offset method will undercompensate the plaintiff for his economic loss. This undercompensation is further exaggerated if the Pennsylvania-Alaska rule is applied in cases where the earnings base is expressed in after-tax dollars. As implied in Table 3, differentials between wage growth and interest would be closer to 3 percent rather than the 0.8 percent to 1.6 percent range of Table 4. Finally, the amount of undercompensation is greater the longer the work-life expectancy. ■

Table 4

Statistical Comparisons of Wage Growth and Interest Rates

Source	Average Wage Growth Minus Average Interest
Carlson, *Economic Analysis and Courtroom Controversy,* 62 Journal of The American Bar Assoc., 628, (1976).	1.6%
Speiser, *Recovery for Wrongful Death,* Economic Handbook 36 (1970).	1.0%
Formuzis & O'Donnell, *Inflation and the Valuation of Future Economic Losses,* 38 Montana Law Review 297 (1977).	1.4%
Franz, *Simplifying Future Lost Earnings,* TRIAL, June 1977, at 34.	1.0%
Nelson & Patton, *Economic Value of Future Earnings,* Trial News, June 1982.	1.4%
Jensen, *The Offset Method of Determining Economic Loss,* TRIAL, December 1983, at 84.	0.8 to 1.5%

Notes

1 *See* Rodriguez v. McDonnell Douglas Corp., 151 Cal. Rptr. 399, 426 (Cal. Ct. App. 1978); Canavin v. Pacific Southwest Airlines, 196 Cal. Rptr. 82, 86 (Cal. Ct. App. 1983).
2 *See* Floyd v. Fruit Indus., 136 A.2d 918, 925-26 (Conn. 1957).
3 *See* Beaulieu v. Elliot, 434 P.2d 665 (Alaska 1967).
4 *See* Kaczkowski v. Bolubasz, 421 A.2d 1027 (Pa. 1980).
5 *See* United States v. English, 521 F.2d 63, 72 (9th Cir. 1975).
6 103 S. Ct. 2541 (1983).
7 33 U.S.C.A. 905(b) (West 1978).
8 421 A.2d 1027 (Pa. 1980).
9 *Id.* at 1038-39.
10 678 F.2d 453 (3rd Cir. 1982).
11 *Pfeifer,* 103 S. Ct. at 2549.
12 *Id.*
13 *Id.* at 2550.
14 *Id.* at 2549, *citing* Norfolk & Western R. Co. v. Liepelt, 100 S. Ct. 755 (1980).
15 *See* Felder v. United States, 543 F.2d 657, 670 (9th Cir. 1976).
16 100 S. Ct. 755 (1980).
17 670 F.2d 843 (9th Cir. 1982).
18 *Pfeifer,* 103 S. Ct. at 2549.
19 *Id.* at 2550, *quoting* Chesapeake & Ohio R. v. Kelly, 36 S. Ct. 630, 632 (1916).
20 *Pfeifer,* 103 S. Ct. at 2550.
21 *Id.* at 2556.
22 R. BARRO, MACROECONOMICS 164 (1984).
23 *Pfeifer,* 103 S. Ct. at 2556.
24 *Id.* at 2550.
25 434 P.2d 665 (Alaska 1967).
26 421 A.2d 1027.
27 *Pfeifer,* 103 S. Ct. at 2551.
28 *Id.* at 2552.
29 *Id.* at 2556.
30 *Id.*
31 *Id.* at 2557 n.31.

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Worklife Tables

Are They Reliable?

Dale R. Funderburk

Worklife tables are subject to challenge on grounds of reliability and applicability. Long-term economic and demographic trends plus recent institutional changes impair the accuracy of these tables. More important, says the author, the use of worklife tables denies the economic principle of opportunity cost and assumes that the right of voluntary economic choice has no value.

In estimating lost earnings in personal injury or wrongful death cases, a critical issue is determining the time over which to project future losses. It has become standard practice to begin by consulting life expectancy tables to determine how long the person in question could have been expected to live. That establishes the upper limit in terms of determining the relevant future period.

For the average worker, however, life expectancy exceeds future worklife. Thus worklife tables enter the analysis. While life expectancy tables are generally accepted with little or no challenge, worklife tables are not. This article will examine some issues in applying worklife tables in estimating lost-earning capacity.

Since the early 1950s, the U.S. Department of Labor's Bureau of Labor Statistics (BLS) has compiled data and published periodic reports on worklife expectancies. Its more recent efforts serve as the focal point for this article. The Bureau's 1982 revisions not only updated previous tables, but also introduced a new methodology for estimation.[1]

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BLS Increment-Decrement Model

The new BLS worklife estimates are based on what it calls an "increment-decrement model." The conceptual differences between the new model and the old (or conventional) one are rather straightforward. Through 1970 the tables assumed that a person in the labor force would remain there until retirement. The new tables recognize that people can and regularly do exit and re-enter the labor force.

The differences in worklife estimates produced by the two models are thus predictable and understandable. For anyone currently active in the labor force, the new model produces a shorter worklife estimate than the old model. For example, based on 1970 data, the conventional model projects that a male worker, age 20, has a remaining worklife expectancy of 41.5 years. Also based on 1970 data, the increment-decrement model puts that same person's future worklife expectancy at 38.0 years. For a 20-year-old female, the conventional model yields a worklife expectancy of 40.6 years while the new one yields only 22.1 years. The new model produces a much greater change for women than for men because, of course, women are more likely to spend time outside the labor force and return before they retire.

Since the new worklife tables appeared, articles have been published about their methodological problems (and therefore their accuracy) and their applicability. Several of these are noteworthy.

John L. Finch, an economic consultant from Seattle, Washington, questioned the soundness of the new methodology and thus the accuracy of its estimates.[2] The essence of his argument is that the increment-decrement model employs biased labor-force entry and exit rates and that the 1977 BLS tables understate the length of the working life for men and overstate it for young women. Shirley Smith, the BLS demographic statistician who developed the Bureau's increment-decrement-based tables and wrote the Bureau's original article on the new methodology and tables, concedes that Finch "may even be correct in asserting that the increment-decrement activity rates are somewhat low, due to underestimation of labor force retention."[3]

Aside from technical methodological problems like those addressed by Finch, there are other significant weaknesses in the BLS tables and certain inherent biases involved in their use. Three major issues need to be considered in this context: long-term trends in labor-force participation patterns, recent institutional changes that may affect retirement-age decisions, and voluntary absences from the labor force.

Long-Term Trends

In explaining the new model, the BLS notes that

> The results of the model are synthetic. That is, they summarize the behavior of all age groups in the population during a given year, rather than trace the history of any one given group through its lifetime. The tables estimate how frequently members of a population would enter and leave the labor force, and how long the average person would remain economically active if rates of behavior remained as they were in the reference year.[4]

But are rates of behavior likely to remain as they were in the reference year—in this instance, 1977? Both historical trends and recent statutory changes suggest not.

The formal worklife of women has increased continually and significantly throughout this century. The convergence of male and female worklif

expectancies has accelerated in recent years. While the average worklife for men remained relatively constant between 1970 and 1977, that of women increased by more than five years. While in 1970 the worklife expectancy of a female at birth was only 59 percent that of a male, by 1977 that ratio had risen to 72.6 percent. Table 1 illustrates the long-run trend.

It also seems significant that while the data show a sizable difference in the number of years males and females spend in the labor force, their final retirement ages are already close. For example, the median final separation (retirement) age for a 30-year-old male worker is 61.5 years; for a 30-year-old female, 61.3 years.[5]

Based on these data, there seems to be little justification for assuming that the average female born in 1980 will be active in the labor force only 27.5 years, or 35.5 percent of her life expectancy, but the average male born at the same time will be active 37.9 years, or 54.1 percent of his life expectancy.[6]

Also, the fact that people are living longer today than in the past is likely to affect worklife. For example, the life expectancy of the average American increased by 1.4 years from 1977 to 1982. Table 2 illustrates the trend over recent years.

Table 1
Years of Worklife Expectancy at Birth

Conventional Model	Women	Men
1900	6.3	32.1
1940	12.1	38.1
1950	15.1	41.5
1960	20.1	41.5
1970	22.9	40.1
Increment-Decrement Model	**Women**	**Men**
1970	22.3	37.8
1977	27.5	37.9

Source: Smith, *New Worklife Estimates Reflect Changing Profile of Labor Force,* Monthly Labor Rev., Mar. 1982, at 17.

Table 2
Years of Life Expectancy at Birth

Year	Both Sexes All Races	White Female	White Male
1967	70.5	75.1	67.8
1973	71.3	76.1	68.4
1977	73.2	77.7	70.0
1980	73.7	78.1	70.7
1982	74.6	78.8	71.5

Source: U.S. National Center for Health Statistics, *Vital Statistics of the United States.*

Institutional Factors

Because the 1982 BLS worklife tables are based on 1977 data, they may be challenged. Two recent legislative acts promise to further reduce their reliability appreciably. In 1977, 65 was generally considered the normal retirement age. Eligibility for full Social Security benefits was tied to age 65, as was mandatory retirement under the Age Discrimination in Employment Act (ADEA). This is no longer so.

The 1978 amendment to the ADEA forbids mandatory retirement for employees between 40 and 70. Furthermore, important provisions of the 1983 Social Security amendments contain economic incentives for workers to delay retirement.

First, the Act provides for a gradual increase in the age of eligibility for full Old Age Survivors and Disability Insurance (OASDI) benefits—raising it from 65 to 66 in 2009 and to 67 in 2027. Second, the Act provides that reduced benefits will still be available at age 62, but at a more severe reduction factor (or penalty). Third, the earnings limitation will be modified so that after 1990 a $1-for-$3 benefit withholding rate will replace the present $1-for-$2 withholding for beneficiaries who are eligible for unreduced retirement benefits. Furthermore, the delayed retirement credit payable to workers who delay retirement past the full-benefit retirement age (currently age 65) and up to age 70 will be gradually increased.

Future Earnings, Earning Capacity, and Free Choice

More fundamental than any question about the reliability of BLS worklife tables is the question of their applicability. This issue centers on "earning capacity" (involving the relationship between probable future earnings and earnings capacity) and the right of individual choice.

A basic concept of economic theory is the principle of "opportunity cost." The term may be defined as

> [The] value of the benefit that is foregone by choosing one alternative rather than another. Also called "alternative cost" since it represents the implicit cost of the foregone alternative to the individual, household, firm, or other decision-making organism.[7]

How does this concept apply here? An example or two should answer that question.

First, take the case of a genius,

enormously talented in several fields, who devotes most of his life to service as a medical missionary in Africa. His monetary compensation is nil. What are his probable future earnings? Nil.

Does this mean that he has no significant earning capacity? Of course not. Albert Schweitzer's earning capacity should not be measured by what a poor group of natives might have paid him. His opportunity cost—the value of his talents—could more accurately be measured in terms of what he could have earned as a skilled physician in an affluent locale, as a talented musician, as an internationally renowned theologian, or as a research scientist.

Next consider the case of a young homemaker who holds a teaching certificate in a field where there is a critical shortage of teachers. Suppose she could earn an annual income of $20,000, but chooses to remain outside the labor force. What is the value of her services to her household? Is it what she is paid? Or is it what she could have earned? The principle of opportunity cost tells us that the value of her services to the family in the home is equal to the value of the highest forgone alternative. The point should be obvious. Actual money income frequently is a very poor measure of opportunity cost—or value.

Albert Schweitzer had the right to choose how he would use his talents. The same applies to the young homemaker. Equity dictates that, if one is robbed of the right to make a choice, then opportunity cost must be considered to compensate that person adequately. Use of a worklife table frequently denies that the injured party made an economic choice, that the choice had a value, and that the option rightfully belonged to the party.

Consider the young female worker who becomes disabled. Is it proper not to compensate her for the years she could have worked and earned just because many of her female counterparts exit the labor force to rear children? To the extent that employment opportunities are available, the choice of working or not working is an individual economic choice. Should one individual be penalized economically because a sizable number of cohorts decide to behave in a certain way?

David M. Nelson, a Western Washington University economist, addressed the propriety of using the new BLS worklife tables to project future lost earnings.[8] The thrust of his argument is this:

- For many people, working life is not continuous, but is spread out over long periods of potential economic activity.
- Courts generally instruct that estimates of economic loss be based on the worker's earning capacity.
- Possible periods of voluntary inactivity before final retirement do not reduce earning capacity.
- Consequently, what is needed for purposes of litigation are estimates of the median age of final separation for individuals of both sexes at various ages.[9]

Nelson then proceeds to calculate such figures based on 1977 data. The BLS worklife tables say a 30-year-old male has a future worklife of 29.3 years; a female, 20.9 years. Nelson calculates, however, that the median age for that same male at retirement is 61.5 years; and for the 30-year-old female, 61.3 years: while the male's estimated worklife is 8.4 years longer than the female's, the final separation

age is only .2 years older. This reflects the fact that women generally spend more preretirement years temporarily outside the labor force than do men, much of which is due to choice. Generally, Nelson's figures show that while men and women differ significantly in the number of years they work, there is little difference in their final retirement ages.

Along the same lines, consider the healthy 62-year-old male worker who has the option of retiring or continuing to work. But if he is injured and disabled, he does not have that choice. Whenever the courts apply a worklife table, the effect is to reason that since many of this man's cohorts would have opted for early retirement, he would also. Does the right to make that choice have an economic value?

Economic theory says it does. Consequently, the person should be compensated for being denied the right to make that choice. A person who could earn $20,000 a year but retires instead clearly values his leisure at at least $20,000 a year. How can a court fairly value that same time at zero? Worklife tables ignore the concept of opportunity cost. Should the courts? ■

Notes

1 Smith, *New Worklife Estimates Reflect Changing Profile of Labor Force*, MONTHLY LABOR REV., Mar. 1982, at 15-20. Complete tables and methodological detail are available from the BLS, Special Labor Force Report, Bulletin 2157 (Nov. 1982).

2 Finch, *Worklife Estimates Should Be Consistent with Known Labor Force Participation*, MONTHLY LABOR REV., June 1983, at 34-36.

3 Smith, *Labor Force Participation Rates Are Not the Relevant Factor*, MONTHLY LABOR REV., June 1983, at 37.

4 Smith, *supra* note 1, at 15.

5 Nelson, *The Use of Worklife Tables in Estimating Lost Earning Capacity*, MONTHLY LABOR REV., April 1983, at 30-31.

6 According to the 1980 Life Expectancy Tables, life expectancy at birth was 70.0 years for a male, 77.5 years for a female.

7 M. SPENCER, CONTEMPORARY ECONOMICS (1974).

8 Nelson, *supra* note 5, at 30-31.

9 *Id.* at 30.

Theories of Compensation

ROBERT E. GOODIN*

From a moral point of view, the function of compensation is straightforward. Compensation serves to right what would otherwise count as wrongful injuries to persons or their property. That is the role of 'compensatory damages' in the law of torts.[1] That is the role of 'just compensation' paid in return for the public taking of private property, pursuant to the state's power of eminent domain.[2] That is what the New Welfare Economists are relying upon when making the possibility of gainers compensating losers the proper measure of permissible policies.[3]

It would, however, be wrong to presume that we as a society can do anything we like to people, just so long as we compensate them for their losses.[4] Such a proposition would mistake part of the policy universe for the whole. The set of policies to which it points—policies that are 'permissible, but only with compensation'—is bounded on the one side by a set of policies that are 'permissible, even without compensation' and on the other side by a set of policies that are 'impermissible, even with compensation'.[5]

There clearly are some things that we as a society can do to people without compensating them in any way for their ensuing losses. This is familiar to American constitutional lawyers through, eg, the distinction between actions arising under the state's 'police power' and those arising under the state's 'taking power'.[6] The state, or its officials, need not compensate those who are stopped from endangering public health, safety or welfare. No one expects state inspectors to compensate owners of insanitary restaurants or unsafe factories which they close down. No one supposes that the legitimacy of public health authorities putting victims of smallpox into quarantine is in any way contingent upon compensation being paid to them for lost wages. No one expects the police o

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[1] W. L. Prosser and J. W. Wade, *Restatement (Second) of the Law of Torts* (ALI 1979) secs 903 ff.

[2] F. I. Michelman, 80 *Harvard LR* 1165 (1967); B. A. Ackerman, *Private Property and the Constitution* (Yale Un Press 1977).

[3] N. Kaldor, 49 *Economic J* 549 (1939); J. R. Hicks, 49 *Economic J* 696 (1939).

[4] Or, in the hypothetical formulation of the Kaldor-Hicks principle, could compensate them for their losses.

[5] My focus here is on what public officials may legitimately do to individuals. Analogous issues arise in decidi what individuals may legitimately do to other individuals; see R. Nozick, *Anarchy, State and Utopia* (Blackwell 19 59.

[6] See Michelman, above n 2; Ackerman, above n 2; J. L. Sax, 81 *Yale LJ* 149 (1971); and more generally E. Corwin, *The Constitution and What It Means Today*, 14th edn (Princeton Univ Press 1978) and L. H. Tribe, *Ameri Constitutional Law* (Foundation Press 1978) 461 ff. Cf R. A. Epstein, *Takings* (Harvard Univ Press 1985).

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courts to compensate the murderers or thieves they incarcerate.[7] No one expects the legislature to compensate tax accountants when passing new legislation to close a lucrative loophole in the present code, or owners of gas-guzzling cars when increasing the petrol tax, or taxpayers generally when levying a new tax.[8] Nor, for that matter, do American courts suppose that the owners of Grand Central Station need be compensated when its being declared a Historical Landmark precludes them from building an office block on top of it.[9] Such actions as these, taken under the state's police or taxing powers, are perfectly permissible, even without compensation being paid to those who lose as a result.[10]

The converse is also true. There are some things that we as a society cannot do to people, even if they are compensated for their resulting losses. This class of cases provides the principal focus for the present article.

When trying to carve out a case for absolute prohibitions, earlier writers have usually tended to argue that some policies are impermissible because it would be impossible to compensate people fully for their resulting losses.[11] One tack is to say that the losses would be infinite, and impossible to compensate for that reason; another is to regard the losses and compensation as incommensurable, so we could never know whether compensation was adequate to cover losses.[12]

[7] True, those who are quarantined or imprisoned are ordinarily paid a small *per diem*, collectable upon discharge. But this is ordinarily a modest sum, rarely constituting anything approaching *full* compensation, even just for earnings (even legal ones!) that the individuals have lost while they have been detained. As evidence of this, notice for example that those who successfully sue for false imprisonment get far more, even in purely 'compensatory damages', than they would have received as the *per diem* due to any prisoner whether rightly or wrongly imprisoned.

[8] At least under certain conditions, one or another of which almost always obtains: if the tax affects everyone in general (Epstein, above n 6, chap 18); or if the tax does not alter people's relative economic standing (M. Feldstein, 6 *J Public Economics* 77 at 95–6 (1976)); or if the tax was explicitly intended to be redistributive (H. Sidgwick, *The Elements of Politics* (Macmillan 1891) 188).

[9] Nor do we expect people to be compensated by one another, or by the public at large, for losses inflicted in the ordinary operation of economic markets. Indeed, to do so would fundamentally undercut the market, removing any incentive for people to reallocate their resources to more productive uses. See R. H. Haveman, V. Halberstadt and R. V. Burkhauser, *Public Policy Toward Disabled Workers* (Cornell Univ Press 1984) 32; cf T. Blough, 3 *Bulletin of the Oxford Institute of Statistics* 99 (1941).

[10] How to distinguish these two classes of cases lies beyond the scope of this article. It is not just a matter of compensation being due when rights have been violated and wrongs done, for compensation is sometimes required (eg, in cases of voluntary sale) even though no one's rights were violated; J. J. Thomson, *Rights, Restitution and Risk* (Harvard Univ Press 1986) 77. The converse may well be true, however: one of the reasons we do not provide compensation, when we do not, is to make it more insecure and hence less attractive for people to engage in 'socially mischievous' activities (Sidgwick, above n 8, 187). Allied to that is an explanation couched in terms of 'legitimate expectations': we need not compensate people when depriving them of things that they had no reason to expect they would be able to keep; we do need to compensate them when depriving them of things they had no reason to expect would be taken away. Yet another analysis, owing to Epstein (above n 6, chap 14), is that those public activities not requiring explicit compensation are ones forming part of a larger social contract from which everyone in society derives 'implicit in-kind compensation'; those for which explicit compensation is due are those carrying no such 'implicit in-kind compensation'.

[11] This is Nozick's (above n 5, 66 ff) approach. He tries to disguise this fact, however, by running his argument for prohibitions through the notion of 'fear'. He argues that some things should be prohibited because there are 'some things we would fear, even knowing we shall be compensated fully for their happening'—for example, someone intentionally breaking your arm. But if the compensation that would be paid really is *full* compensation, then you would have nothing to fear. As I conclude elsewhere, 'The only way to make sense of [Nozick's] intuitions . . . is to say that those are occurrences for which one can never be fully compensated'; R. E. Goodin, *The Politics of Rational Man* (Wiley 1976) 81. Alternatively, we might try to found the case for prohibitions on considerations of efficiency or distributive justice, rather than on the impossibility of compensation, as do G. Calabresi and A. D. Melamed, 85 *Harvard LR* 1089 (1972).

[12] R. Zeckhauser and E. Shaefer, in R. A. Bauer and K. J. Gergen, (eds), *The Study of Policy Formation* (Free Press 1968) 38 ff; L. H. Tribe, 2 *Philosophy and Public Affairs* 66, 87 ff (1972); J. Feinberg, *Social Philosophy* (Prentice-Hall 1973) 92; B. Williams, *Moral Luck* (Cambridge Univ Press 1981) chap 5.

Both these approaches have run into serious difficulties. As a purely practical matter, it is difficult to adjudicate conflicts between two things each of which has infinite value—unless we care to talk in terms of 'different sized infinities'.[13] More fundamentally, infinite values imply lexicographical priority rules, which are wildly implausible: there are few (if any) pairs of goods such that we would refuse to sacrifice any quantity, however small, of the more valuable to secure any gain, however large, in the less valuable.[14]

The 'incommensurability' approach has more superficial appeal.[15] But in the end, it too must be rejected. Its great flaw is that it misrepresents hard choices as easy ones.[16] We may find it hard to say whether Sartre's student should abandon his aged mother to fight with the Resistance or abandon his country to stay and comfort his mother; but whatever else we say about this choice, we are confident that it is rightly to be regarded as a *hard* choice. Representing the competing claims of kin and country as incommensurable would carry the opposite implication. Since no one solution would then be demonstrably any better than any other, the student might as well just flip a coin rather than agonizing over the choice. That, however, is surely *too* easy.[17] Wherever we are tempted to say that the values at stake in some choice are incommensurable, we are likely to be similarly uncomfortable with such a trivialization of a choice that we think should rightly be regarded as tragic.

Here I shall take a different tack altogether. I shall not be saying that policies are impermissible because compensation is impossible in either of these ways. I shall concede that compensation in some sense can be paid. But that compensation in a *different* sense from that which renders permissible otherwise impermissible policies. For that transformation, compensation of a *strong* sort is required. In the class of cases here in view, only compensation of a different and much weaker sort is available.

Of course, some other right-making characteristic might always intervene to render a policy permissible even if the right form of compensation is unavailable to do so. It is no part of my thesis that all policies not admitting of this strong form of compensation are necessarily illegitimate *tout court*. My thesis is merely that arguments couched in terms of compensation cannot, in these cases, provide the needed legitimation.

[13] E. J. Mishan, in R. Layard, (ed), *Cost-Benefit Analysis* rev edn (Penguin 1974), 462, noticing that some replies to surveys undertaken by the Roskill Commission imply that people would suffer 'infinite' losses from being forced to move, remarks 'this would obviously wreck any cost-benefit criterion'. Feinberg (above n 12, 92 n 8), however, claims that this is a virtue of describing particularly important values as 'infinite': it would prevent one person's loss of that value (eg, freedom) being made up by any number of other persons' gains of that value.

[14] A. Sen, 4 *Theory and Decision* 301 (1974); J. C. Harsanyi, 69 *American Political Science Rev* 594 (1975). See more generally R. Nozick, 13 *Natural L Forum* 1 (1968).

[15] See, eg, S. Williston, *Restatement of the Law of Contracts* (ALI 1932) sec 361 comment e, saying that the reason specific performance is sometimes ordered is that 'there are interests . . . recognized by the law . . . [that] are not commensurable with money. . . .'

[16] Similar objections were lodged against the 'anything goes' implication that seemed to follow from Kuhn's arguments about the 'incommensurability' of scientific paradigms; see, eg, I. Lakatos and A. Musgrave, (eds), *Criticism and the Growth of Knowledge* (Cambridge Univ Press 1970).

[17] C. Taylor, in A. O. Rorty, (ed), *The Identities of Persons* (Univ of California Press 1976) 281, 290–1. See more generally J. Griffith, 7 *Philosophy and Public Affairs* 38 (1977) and Williams, above n 12, 76 ff.

I. The Notion of 'Compensation'

Compensation in General

The general idea of 'compensation' is straightforward enough. To compensate someone for something is, in the words of the landmark decision of the US Supreme Court in this area, to provide that person with 'a full and perfect equivalent' for that thing.[18] If he is given more than that, we would say he has been 'over-compensated'; if less, 'under-compensated'. Being bracketed as it is between these other two notions, the notion of compensation *per se* clearly implies the providing of the *exact* equivalent—neither more nor less.

To compensate someone is to provide him with something that is good, ie, with things that are desired (or at least are desirable).[19] The aim is to bring him up to some baseline of well-being. That baseline to be used for reckoning the adequacy of compensation will typically be identified by reference to some *status quo ante*, ie, some position that the individual himself actually enjoyed at some previous time. Thus, in the law of torts, the baseline for compensatory damage calculations is the position that the injured party was in before the tort was committed against him; when property is taken under the government's power of eminent domain, the compensation due is reckoned as the amount of the property-owner's loss, understood as the difference between his position in the baseline situation prior to the seizure and his position afterwards; and so on.[20]

Finally, notice one further general point. Compensation is not the same as restitution. It is one thing to restore the object itself to its proper owner. That is what we (and the *Oxford English Dictionary*) call 'restitution'. It is quite another thing to compensate the person for its loss. Such compensation is characteristically a matter of providing something which will, in the words of the *Oxford English Dictionary*, 'counterbalance, neutralize or offset' the loss.[21] What all those terms suggest, in turn, is not the restoration of the object itself, but rather the provision of something else altogether.

[18] *Monongahela Navigation Co* v *US* 148 US 312, 326 (1893). In Britain, too, 'the lawyer generally thinks of compensation as a method of making good a "loss", of replacing something of which a person has been deprived'; P. Cane, *Atiyah's Accidents, Compensation and the Law* 4th edn (Weidenfeld and Nicolson 1987) 5. As Atiyah continued, in an earlier edition: 'It is the simple principle that the plaintiff is entitled to a full indemnity for his losses; that he is to be made "whole" so far as money can do this'; P. S. Atiyah, *Accidents, Compensation and the Law* 3rd edn (Weidenfeld and Nicolson 1980) 5. See also J. P. Day, 56 *Philosophy* 55 (1981).

[19] Some commentators talk of 'revenge'—inflicting harm upon (or removing goods from) people who are above the baseline, in order to bring them down to it—as a kind of 'negative compensation'; see G. MacCormack, 21 *American J of Comparative L* 69 (1973). But that cannot constitute 'compensation', strictly speaking, unless we suppose that other people who are themselves below the baseline will benefit from people above it being made worse off. Sometimes, of course, that will be true; A. Sen, 35 *Oxford Economic Papers* 153 (1983).

[20] Prosser and Wade, above n 1, secs 903 ff; Cane, above n 18, chap 7; Corwin, above n 6, 402. Occasionally the baseline used is some independent norm or ideal which, although perhaps standard among some reference group in the population at large, was never previously enjoyed by the individual being compensated. This is an attenuated sense of 'compensation', no doubt. But this is in the sense in which we claim to 'compensate' the congenitally handicapped for vision that they never had by providing seeing-eye dogs, or the educationally disadvantaged for stimuli that they never enjoyed at home by providing pre-school education. See A. J. Culyer, in D. Lees and S. Shaw, (eds), *Impairment, Disability and Handicap* (Heinemann, for the SSRC 1974) 17 at 22–3; and Haveman, Halberstadt and Burkhauser, above n 9, 30.

[21] See similarly Sidgwick, above n 8, 180.

Two Kinds of Equivalence

The central claim of this article is that there are two kinds of compensation. These correspond to the two fundamentally different ways in which one object can constitute an 'equivalent' for another object which the person has lost.

The first kind of compensation might be called *means replacing compensation*. The idea here is to provide people with equivalent means for pursuing the *same* ends (the same as before they suffered the loss, or as they would have pursued had they not suffered the disadvantage).[22] Giving someone who has been blinded a sighted amanuensis or someone who has lost a leg an artificial limb are attempts at this kind of compensation, which I shall hereafter call compensation$_1$.

The second kind of compensation might be called *ends-displacing compensation*. The idea here is to compensate people, not by helping them pursue the same ends in some other ways, but rather by helping them to pursue some other ends in a way that leaves them subjectively as well off overall as they would have been had they not suffered the loss at all. Giving someone who has suffered a bereavement an all-expenses-paid Mediterranean cruise might be an example of this sort of compensation, which I shall hereafter call compensation$_2$.

The distinction between these two kinds of compensation might be summarized thus. The first kind of compensation attempts to provide people with equivalent means to the same ends. The second kind of compensation attempts to provide them with equivalent satisfactions through different ends.[23]

Both standards of compensation insist that people must be made as well off as they would have been, had it not been for the loss for which they are being compensated. With compensation$_2$, however, they will be as well off as they would have been, but *differently* off than they would have been. To achieve compensation$_1$, it is not enough that they somehow or another be made as well off. They must be left *identically* situated with respect to exactly the same set of ends.

II. Compensation in Practice

In due course, I shall argue for the moral superiority of compensation$_1$ over compensation$_2$. In attempting to motivate that argument, however, it might be

[22] Those who suppose that the means-ends distinction is illusory, on the grounds that every end is in turn a means to some deeper end, are referred to the discussion of the structure of preferences in Section III below.

[23] The closest I have come to finding this distinction in the extant literature is in Atiyah's distinction between 'equivalence compensation' and 'substitute (or solace) compensation'; Cane, above n 18, 474–6. The former aims to 'give the victim back what he "lost" '; the latter aims to 'provide some other pleasures to the victim, in lieu of those he can no longer enjoy, . . . substituting . . . a new pleasure for the lost one'. In the examples he gives, however, Atiyah blurs this valuable distinction. Among his examples of 'substitute compensation' are these: 'The man who is blinded and can no longer watch television may be enabled to buy a gramophone and a collection of records, to give him an alternative form of pleasure. The man who loses a leg and can no longer go for a country walk may be enabled to buy a car, and savour the pleasures of the countryside in a different way.' But whether those count as compensations$_1$ or compensations$_2$—as 'equivalents' or 'substitutes', in Atiyah's terms—surely depends upon how the injured man conceptualizes his pleasures. If the original pleasure was conceptualized as 'walking in the country', then a drive in the country truly is only a substitute (compensation$_2$) for that. If, however, the original pleasure was conceptualized as 'seeing the country' or even 'getting out into the country', then a car would indeed be an alternative means for attaining the same end—and hence constitutes what I call compensation$_1$, and what Atiyah himself would seem to call an 'equivalent'.

useful first to reflect upon compensation as it is currently practiced in public policy. Contemporary societies have developed a wide variety of ways for compensating people for all manner of accidents, injuries, illnesses, disabilities, losses, etc. In surveying them all, it is striking how many of our public policies aim at what I have here called compensation$_1$, and how few aim at compensation$_2$.

The distinction is never phrased in precisely those terms, of course. Instead, lawyers typically distinguish between compensation for pecuniary harms and for non-pecuniary ones. Pecuniary harms include damage to one's property or earning capacity or the creation of legal liabilities; non-pecuniary harms include bodily harm, emotional distress, humiliation, fear and anxiety, loss of companionship, loss of freedom, distress caused by mistreatment of a third person or a corpse, and so on.[24]

Now, compensation of the sort lawyers have in view will come in a pecuniary form, as monetary damage awards or other cash payments. Hence, pecuniary compensation for pecuniary losses would constitute what I have called compensation$_1$: the replacement of like with like. Compensation of a pecuniary sort for losses which themselves were non-pecuniary seems to constitute compensation$_2$: the substitution of one sort of pleasure for another.[25]

One good indicator of the balance of compensation$_1$ to compensation$_2$ in our existing compensation policies, then, is the extent to which they attempt to compensate for pecuniary versus non-pecuniary losses.[26] In practice, the former typically involves payments to replace lost earnings or to cover extra expenses associated with injuries or disabilities, whereas the latter typically involves payments compensating for 'pain and suffering' or the 'loss of faculties or amenities'.[27]

Perhaps the most comprehensive survey of compensation policies is the one carried out by the Oxford Socio-Legal Studies Centre in the late 1970s. Eighteen categories of financial support available to UK victims of illness or injury are

[24] Prosser and Wade, above n 1, secs 905 and 906.

[25] This is not a necessary truth. A large cash payment may be seen as a mark of social esteem, thus overcoming one's sense of humiliation; a large bankroll may directly contribute to making one less anxious and fearful; etc. But it is presumably only rarely that a pecuniary compensation will be expected to work in some such way to restore the identical non-pecuniary good that was lost.

[26] Another indicator is the way in which courts order 'specific performance' of contractual duties where 'the remedy in [monetary] damages would not be adequate' because, *inter alia*, of 'the existence of sentimental associations and esthetic interests, not measurable in money, that would be affected by breach' or 'the difficulty, inconvenience, or impossibility of obtaining a duplicate or substantial equivalent of the promised performance by means of money awarded as damages'; Williston, above n 15, secs 358(1) and 361(b–c).

[27] Atiyah's distinction between 'equivalence compensation' and 'substitute (or solace) compensation' (Cane, above n 18, 473–6) is best understood in these terms: the former is a matter of giving pecuniary compensation for pecuniary losses, the latter of giving pecuniary compensation for non-pecuniary losses. D. R. Harris, in Lees and Shaw, above n 21, 30, 48, similarly observes that, 'since it is impossible to quantify in money terms the value of a lost limb, or the "loss" involved in pain and suffering, the question should be asked why the attempt need be made'. The reply Harris offers makes it clear that compensation$_2$ is what he has in mind. Prosser and Wade (above n 1, sec 903, comment a) similarly remark that 'when . . . the tort causes bodily harm or emotional distress, the law cannot restore the injured person to his previous position. . . . Nevertheless, damages given for pain and humiliation are called compensatory', presumably in the second of my senses.

studied.[28] Of these, only four (or perhaps five) offer any provision at all for pain-and-suffering or loss-of-faculties payments.[29] Summarizing these findings, the Oxford team writes,

> Most benefits . . . give priority to meeting either the loss of income or the reimbursement of the extra expenses incurred by disabled people. A few—damages, criminal injuries compensation, the disablement benefit for industrial injuries, and war pensions—do provide some money to assuage suffering or to give an alternative pleasure where the . . . victim can no longer enjoy a particular activity. But this type of loss is covered by social security only in exceptional cases, and few people take advantage of the opportunities to buy private insurance to cover against it.[30]

Furthermore, among those programmes offering pecuniary compensation for non-pecuniary losses, only one (tort law) provides substantial sums to large numbers of people in many jurisdictions. 'Personal accident insurance policies (rare enough in themselves) are usually limited to medical expenses or income losses; and though small disability pensions are often made under comprehensive road traffic insurance policies, they rarely exceed £500 for severe disablement, with lesser sums for other cases.'[31] Compensation for pain-and-suffering or loss-of-faculties associated with war injuries, industrial injuries or criminal injuries are obviously available to only very limited numbers of people injured in very particular circumstances; and even then, the pain-and-suffering or loss-of-faculties component in the award (as compared with the loss-of-earnings component) is typically quite small.[32] Tort law, although notionally generous, in practice often offers little more: in one study of out-of-court settlements, 'the mean sum for non-pecuniary losses such as pain and suffering, was £973, which . . . is a relatively low sum, especially since in just under 40 per cent of the cases the . . . amount agreed for damages took account of some permanent disability.'[33]

Sums like these can hardly pretend to 'make up' for serious bodily harm. They are instead token payments. As with 'nominal damages' in tort law, the sums involved are not 'utterly derisory'; but pretty clearly, the principal value of the

[28] These include two types of damages (damages at common law, as modified by statute; criminal injuries compensation), ten types of social security income support (industrial injury benefit; disablement benefit, and special hardship allowances and unemployability supplements thereto; war pensions and associated special allowances; sickness benefit; invalidity benefit; non-contributory invalidity pension; invalid care allowance; supplementary benefit); four types of social security expense payment (attendance allowance; constant attendance allowance; mobility allowance; the family fund), and two types of private provision (sick pay from employers; private insurance). See D. R. Harris et al, *Compensation and Support for Illness and Injury* (Clarendon Press 1984) 4–12.

[29] These are: criminal injuries compensation; disablement benefit; war pensions; and (often) private personal accident insurance. Ibid.

[30] Ibid, 15.

[31] Cane, above n 18, 475.

[32] Note, for example, the experience under New Zealand's Accident Compensation Act 1972, which merged all major public programmes for compensating people for accidental injury (including workmen's compensation, criminal injuries compensation, and compensation for road accidents): '80 per cent of awards under section 120 [which covers 'loss of amenity' and 'pain and suffering'] are for less than $1000'; see T. G. Ison, *Accident Compensation* (Croom Helm 1980) 65. Notice, furthermore, that many of these compensation schemes did not originally (and in many places, still do not) make provision for pain-and-suffering or loss-of-amenity payments at all. See, on the early California experience with workmen's compensation, P. Nonet, *Administrative Justice* (Russell Sage 1969) 20–5. Indeed, circa 1971, criminal injury compensation schemes covered pain-and-suffering only in England, Hawaii and New Zealand, in the latter case being limited to $500; A. N. Enker, in I. Drapkin and E. Viano, (eds), *Victimology* (Lexington Books 1974) vol 2, 121, 131 and R. Elias, *Victims of the System* (Transaction 1983) 33, 151–7.

[33] Harris et al, above n 28, 90.

awards is meant to be symbolic.[34] The aim, in Atiyah's terms, is surely to provide 'solace' rather than 'substitutes'.[35]

Thus it would seem that monetary payments principally serve to replace monetary losses. The vast majority of compensation programmes doling out pecuniary awards do not even try to compensate for non-pecuniary losses at all.[36] Those few that do tend, in practice, to make only token gestures along such lines. That strong preference for replacing like with like, money with money, would seem to betray a preference for compensation$_1$ over compensation$_2$.

The same pattern reappears when we look more deeply at the way in which compensation schemes characteristically function. We provide the blind with talking books, readers and audible street-crossing signals. We provide the wheelchair-bound with access ramps to public buildings. We provide invalids with home help (or an Invalid Care Allowance, to allow them to hire it), and the lame with transport (or a Mobility Allowance, to allow them to acquire it), and the disabled with rehabilitation and retraining.[37]

All those things are by way of compensation$_1$—improving people's lives in broadly the same respects as some accident, injury or disability has worsened them. What we typically do *not* do is offer compensation$_2$, compensating people in one realm for losses suffered in some other realm entirely. Monogamous societies do not, typically, make an exception to allow a blind man to take two wives. That might make him better off in some global sense. But it would be deemed inappropriate, having nothing to do with his blindness.

III. The Structure of Preferences and the Possibility of Compensation

Modern welfare economists no doubt would, on the face of things, find this preoccupation with compensation$_1$ baffling.[38] From their perspective, the point of compensation is merely to leave people as well off as we found them. If indifference curves are conceptualized as connecting points representing different bundles of

[34] G. Williams and B. A. Hepple, *Foundations of the Law of Torts* 2nd edn (Butterworth 1984), 57–8. The same is true of the $20,000 compensation being paid almost half a century later to Japanese Americans unjustifiably interned during World War II. As one advocate of their cause put it in Congressional testimony: 'Nothing can ever adequately compensate the Japanese Americans for the wrongs done them. . . . But what this bill can do is make it possible for this nation once again to hold its head high in remorse and thus in decency . . . and thus give new vitality to its commitment to civil freedom'; J. L. Rauh Jr, *Washington Post (National Weekly Edition)*, 12 May 1986, 28.

[35] Atiyah, in Cane, above n 18, 474. Enker, above n 32, 131 remarks similarly that the $500 limit formerly imposed by the New Zealand criminal injuries compensation scheme on pain-and-suffering awards suggested that the real function of such awards was merely as a 'concrete expression of public sympathy for those victims'.

[36] In some (but surely not all) of the social security programmes, the explanation might be that they do not aim at compensation at all but are intended instead to serve other social functions. Nonet, above n 32, 20, quotes one early administrator of the California workmen's compensation scheme as saying the aim of his programme 'is not compensation. . . . What it is, is insurance . . . necessary to tide the injured person and those dependent upon him over their periods of adversity until they can again become self-sustaining. That is all that it is. We have got the right thing but we have got the wrong name for it'.

[37] Haveman, Halberstadt and Burkhauser, above n 9, 45–6; both what they term 'ameliorative responses' and what they term 'corrective responses' would fall within my larger category of compensation$_1$. See more generally details of programmes in Harris et al, above n 28, chap 1 and Cane, above n 18, chap 16.

[38] 'On the face of things', in deference to the possibility discussed in note 68 below.

goods that a person regards as as good as each other, then being compensated must surely be a matter of ending up on the *same indifference curve* afterwards as before. There is no need to restore someone to the *same point* on that indifference curve (ie, to restore exactly the same bundle of goods to them) since, *ex hypothesi*, he is indifferent between all alternative points on the same curve.[39] For the welfare economist, the choice between compensation$_1$ and compensation$_2$ all comes down to cost; and if in practice it proves cheaper to make losses up to people in some way other than restoring things like those they have lost (as typically it will[40]) then compensation$_2$ is from the welfare economist's perspective decisively to be preferred.

What underlies welfare economists' insensitivity to the distinction between compensation$_1$ and compensation$_2$ is their studied indifference to the deeper structure of people's preferences.[41] With conventional consumer theory, everything is presumed to substitute for everything else at the margin.[42]

Now, even within economics there is a growing band challenging this presumption. Georgescu-Roegen wryly observes that 'bread cannot save someone from dying of thirst, . . . living in a luxurious palace does not constitute a substitute for food, etc.'[43] Or as Lancaster says, there must be something about margarine that makes it a good substitute for butter but a bad substitute for a Chevrolet. Building on such observations, Lancaster goes on to offer his New Consumer Theory,

> breaking away from the traditional approach that goods are the direct objects of utility, and instead supposing that it is the [objective] properties or characteristics of the goods from which utility is derived. . . . Utility or preference orderings . . . rank collections of characteristics and only rank collections of goods indirectly through the characteristics that they possess.[44]

In Sen's terms, 'commodities' are valued not only in their own right but rather by virtue of the 'capabilities' that they bestow.[45] In short, goods have certain objectively-defined capacities to serve our subjectively-defined ends.

[39] In introducing his Compensation Principle, for example, Kaldor (above n 3, 551 n 1) acknowledged that 'individuals might, as a result of a certain political action, sustain losses of a non-pecuniary kind'. But all he infers from that fact is that 'something more than their previous level of money income will be necessary to secure their previous level of enjoyment'. Apparently he proposes to make up this shortfall merely by providing people with a larger money income. Culyer (above n 21, 22) has recently reaffirmed the economist's faith that 'non-pecuniary costs are in no way conceptually distinct from any other costs'.

[40] Getting him back to the same indifference curve (compensation$_2$) can never cost *more* than getting him back to some particular point on that indifference curve (compensation$_1$), obviously. Often, it will cost less.

[41] In his influential essay, 'Rational Fools', A. Sen, 6 *Philosophy and Public Affairs* 317, 335 (1977) rails similarly against traditional utility theory for having 'too little structure'. A similarly complicated structure among a person's moral values is also suggested by Nozick's (above n 14, 33 ff) discussion of the various different ways in which values might 'override', 'outweigh', 'neutralize', 'weaken', 'dissolve', 'destroy', 'invalidate', 'preclude' or 'nullify' one another.

[42] Earlier political economists, though firm in this conclusion, tended to offer rather more subtle arguments for it than their modern successors. See V. Pareto, *Manual of Political Economy*, trans A. S. Schwier (Kelley 1971) 182–6 and P. H. Wicksteed, *The Common Sense of Political Economy* (Routledge 1933) 152–3, 360–1.

[43] N. Georgescu-Roegen, 68 *Quarterly J of Economics* 503, 516 (1954).

[44] K. J. Lancaster, 74 *J of Political Economy* 132, 133 (1966). See further K. J. Lancaster, *Consumer Demand* (Columbia Univ Press 1971).

[45] A. Sen, *Commodities and Capabilities* (North Holland 1985).

The particular importance of this model for the present argument lies in its analysis of the way in which goods can substitute for one another. One thing is a good substitute for another if, however different it might otherwise be, it has the same objective capacity to promote exactly the same end as does the other. In Lancaster's terms, two goods are 'perfect substitutes' if they present exactly the same 'characteristics' in exactly the same proportions; they constitute 'close substitutes' if the associated characteristics-bundles are substantially similar.[46] In Sen's terms, they are good substitutes in so far as they promote the same capacities.[47] Thus, objects that are otherwise very different—as are trains and cars (ask any engineer) or butter and margarine (ask any chemist)—might nonetheless constitute close substitutes for one another, in so far as they present the same deeper Lancastrian 'characteristic' or promote the same 'capabilities' or, in layman's terms that connote almost the same thing, serve the same ends.

For many things, there *are* close substitutes. Production-line manufacture being what it is, one Ford Fiesta is to all intents and purposes just like another. So, unless you happen to form sentimental attachments to your automobiles, you can be fully compensated in the first sense as well as the second for the loss of one Ford Fiesta by being given another. One five pound note is much like another. So, unless you attach particular importance to how you came by it (eg, it was the first you ever earned, or it was given to you by your grandmother before she died), you can be fully compensated in the first sense as well as the second for the loss of one five pound note by being given another. And so on.

There are many things, however, for which there are *no* close substitutes. One rich source of examples concerns personal integrity: both bodily integrity and moral integrity are the sorts of things that, once lost, are largely irreplaceable. Other examples concerns goods which are valued on account of their histories. Works of art, keepsakes, historical landmarks and natural wonders are all irreplaceable in so far as what we value about them is intrinsically bound up with the history of their creation. That is what makes facsimiles, which are otherwise identical to their originals, mere 'fakes'.[48]

There being no close substitutes for objects that are irreplaceable, it is impossible to compensate people in the first sense should those things be lost. All we can do is to compensate them in the second sense, offering them goods with different characteristics, speaking to altogether different desires, and yielding altogether different satisfactions.

The welfare economist's case for ignoring any distinction between the two kinds of compensation, sketched in the opening paragraph of this section, was that 'indifference is indifference; it does not matter where compensation puts you on an indifference curve, just so long as you are restored to the *same* curve'. Recasting the

[46] Lancaster, 74 *J of Political Economy* 132, 144 (1966).

[47] Sen, above n 45.

[48] For a fuller account of 'irreplaceable assets', see R. E. Goodin, 21 *International J of Environmental Studies* 55 (1983); R. E. Goodin, *J of Public Policy* 53 (1982); and R. E. Goodin, *Political Theory and Public Policy* (Univ of Chicago Press 1982) 120–1, 157–8, 181–3. On 'fakes', see M. Sagoff, 75 *J of Philosophy* 453 (1978) and R. Elliot, 25 *Inquiry* 81 (1982).

argument of this section into those terms, we have seen that indifference is not all of a cloth. There are, in fact, two kinds of indifference, corresponding to the two kinds of compensation.

In the form of indifference that parallels compensation$_1$, we might be indifferent$_1$ between two options because they are equivalent ways of achieving the same goal. We might be indifferent$_1$ between the high road and the low road because they both get us to the same destination in the same time and with the same effort. In the form that parallels compensation$_2$, we might be indifferent$_2$ between options because they are ways of achieving equivalently-good goals. We might, for example, be indifferent$_2$ between the Glasgow road and the Edinburgh road because both cities offer amusements which, however different, are equally amusing. Economists, in their continuing quest to 'extract the minimum of results from the minimum of assumptions',[49] use the same curve to represent both fundamentally different phenomena.

IV. The Superiority of Compensation$_1$

With this apparatus in hand, we can now return to address the question of how it can be wrong for the state to do certain things to people, even if it compensates them for their losses. The short answer, foreshadowed in the introduction, is that the compensation in view is inadequate to legitimize the policy because it is of the wrong kind. The cases where compensation is adequate to legitimize policies, I submit, are cases where there is something irreplaceable at stake. Since there are no close substitutes for the things people would lose, the state could compensate them only in the weaker, second sense; and that is just not good enough.[50]

Why is that not good enough? After all, something might be irreplaceable without being of infinite value. Each oil painting is, in some sense or another, an utterly irreplaceable 'one of a kind'. That, however, does not stop artists (even rich ones, who are not in any sense acting under duress) from selling their works. The same seems to be true for a wide variety of other things that we would regard as irreplaceable. There is usually *some* price such that people would be induced to part with them.

But it is one thing for someone, in exchange for something else altogether, voluntarily to part with some thing that is irreplaceable.[51] It is quite another for the state compulsorily to force that trade.

[49] Lancaster, 74 *J of Political Economy* 132 (1966).

[50] 'Not good enough', because it does not do what compensation is particularly supposed to do, viz, restore the *status quo ante*. That compensation$_2$ makes people better off in other ways, and might leave them better off in terms of overall utility, is therefore irrelevant. The point of compensation is not just to make people better off, but to bring them back to where they were. Of course, perfect compensation$_1$ is often impossible; and when it is, it is an open question whether imperfect compensation$_1$ is or is not better than whatever form of compensation$_2$ is on offer. This follows from 'the general theory of second best', R. G. Lipsey and K. J. Lancaster, 24 *R of Economic Studies* 11 (1956).

[51] This slides over the question of what constitutes a 'coercive offer'. Certainly it is true that if people have no choice but to accept the putative offer (eg, otherwise they would die) the exchange can be said to have been coercive, whatever its outward form. The same may perhaps be said of cases where the price is extraordinarily high, compared to the sort of capital that a person could otherwise expect to accumulate. If for example some perfectly well-paid clerk were offered £10 million for his left thumb, that might be thought to constitute a 'coercive offer', even though the clerk's option of continuing life as before is a perfectly viable one.

The way compensation works to legitimize public policies is by removing any distributional objections to the consequences of those policies. That is clearly the role economists see it playing. If gainers actually compensate losers and still have some gains left over, then the policy constitutes a paretian improvement: someone wins, no one loses. If gainers hypothetically could compensate losers and still have some gains left over, then at least that shows we could still have neutralized the distributional effects of the policy and still shown a profit; that we refuse to do so is itself a distributional decision.[52]

There is nothing peculiarly economistic in viewing compensation in this way. Lawyers and courts of law have long taken a similar view of it.[53] What *is* peculiarly economistic is the way of putting the point. In explaining how compensation removes distributional objections, the economist would typically say something along these lines: 'If everyone is as well off as he was before the policy was instituted, then no one has any grounds for complaint'.

That way of putting the point, however, focuses on *interpersonal* redistributions while ignoring *intrapersonal* ones. As shown in Section III above, people's preferences and goals are not one undifferentiated mass. Rather, they fall into several distinct, subjectively-defined categories. To guarantee the distributive-neutrality of our policies under those circumstances, it is not enough that people be left globally *as well off* as we found them. We must furthermore make sure they are left exactly *as* we found them. The former consideration speaks to interpersonal distributions, the latter to intrapersonal ones. It would be wrong, to the same extent and for the same reasons, for the state peremptorily to redistribute priorities between goals and projects that constitute one person's own life as it would be to redistribute resources between the goals and projects that constitute different people's lives.[54]

Compensation$_1$, where it is possible, successfully avoids both sorts of distributional objection. Where they are given close substitutes (as defined above) for what they have lost, people are not only as well off as before but also in exactly the same position with respect to exactly the same goals as before. All that has changed is the means by which those goals are to be pursued.[55] Where no close substitutes are available for what has been lost—where compensation$_2$ alone is possible—some amount of intrapersonal redistribution is inevitable. People might be as well off as before, but they will be differently off. They will have been forced to shift their

[52] This is its role both in the theoretical welfare economics (Kaldor, above n 3; Hicks, above n 3) and in applied economics. On the latter, see: J. L. Cordes, 55 *Land Economics* 486 (1979); J. L. Cordes and R. S. Goldfarb, 41 *Public Choice* 351 (1983); H. M. Hochman, in H. M. Hochman and G. E. Peterson, (eds), *Redistribution Through Public Choice* (Columbia Univ Press 1974) 320; G. Tullock, 2 *Regulation* 50 (Nov/Dec 1978).

[53] Michelman, above n 2, 1168; see similarly Ackerman, above n 2, and Tribe, above n 6, chap 9.

[54] At this point economists protest that the two are not analogous: in the interpersonal case, the distributional objection is that someone has been harmed; but in the intrapersonal case, no one has been harmed. But that latter proposition is true only if 'having been harmed' is completely analysable in terms of 'having been shifted to a lower indifference curve' (which of course they have not); and it is precisely that proposition that is here in dispute. Economists making this reply are thus merely asserting what they are being asked to prove.

[55] Perhaps people have chosen their means, just as surely as they have chosen their ends. But presumably people's 'moral personalities' are more heavily invested in the latter sorts of choices than the former.

goals, and not just their means of achieving their goals. Thus, compensation$_1$ erases all distributional objections to policies, whereas compensation$_2$ erases only half of them. Therein lies the superiority of the first sort of compensation over the second. That explains why compensation$_2$ is just not good enough to legitimize certain sorts of policies.

(Again, I should emphasize that distributive neutrality is neither a necessary nor a sufficient criterion of a legitimate policy, from a broader perspective. As I said at the outset, all kinds of state action are perfectly permissible without any compensation whatsoever. My point here is a much narrower one: the only way compensation can do anything at all to render legitimate otherwise illegitimate policies is by removing distributional objections to them; and compensation$_2$, by itself, can do only half that job.)

There are two independent ways of explaining what, exactly, is wrong with imposing on people such intrapersonal redistributions, forcibly shifting them from one set of plans and projects to another. The first has to do with the value of 'coherence and unity' in a person's life.[56] Critics of classical utilitarianism have made much of the objection that it requires us to lead an incoherent life: fifteen minutes collecting for Oxfam, three hours as a nurse, twenty minutes as an investment banker, two hours shearing sheep, etc. Such a life, maximize social utility though it may, in some deeper sense adds up to nothing in the end.[57] One way of capturing this thought is to say that you can be either a saint or a sinner, but that there is no point in being a saint and sinner on alternate days.

As it stands, this is a perfectionist objection to forced intrapersonal redistributions between a person's plans and projects. That is to say, a life characterized by more coherence at any moment in time and by more stability across time is a 'better' life, by some *external* criterion.[58] Of course, it is also a more satisfying life by the internal criteria that most people use in deciding what makes their own lives satisfying. But some people might happen to prefer a less coherent life to a more coherent one—regarding 'coherence' as a straitjacket constraining creativity, or whatever. Given this potential divergence, perfectionist arguments based on the objective goodness of a more coherent and unified life are potentially open to powerful anti-paternalist rejoinders.

Remember, though, that the objection here in view is to *forced* shifts between a person's plans and projects. If someone freely chooses to adopt and abandon projects willy-nilly, that would be one thing. Even if we suppose that would be a less good life, by some external standard, we might nonetheless suppose that he

[56] Indeed, one of the more important arguments for compensation itself has long pointed to its role in providing stability, and hence coherence, in people's lives—removing 'insecurities', shoring up 'legitimate expectations' and easing 'psychological traumas' of those who fear (perhaps groundlessly) that they will be harmed (Sidgwick, above n 8, 179–80; Tullock, above n 52, 54). As one modern writer puts it, 'Individuals have as a matter of principle a right to reasonable security in their persons and possessions, and accordingly a right to be compensated when that reasonable security is infringed'; N. MacCormick, *Legal Right and Social Democracy* (Clarendon Press 1982), 214.

[57] B. Williams, in J. J. C. Smart and B. Williams, *Utilitarianism, For and Against* (Cambridge Univ Press 1973) 75, 108–18 and Williams, above n 12, especially chap 1.

[58] R. Nozick, *Philosophical Explanations* (Harvard Univ Press 1981) 403–51; R. Wollheim, *The Thread of Life* (Cambridge Univ Press 1984).

should be allowed to lead his own life as he pleases. But for someone to be forced, by some external agency, to drop one project and take up another (even one that he would himself regard as an equally good project) is something else altogether. Far from endorsing that policy, the anti-paternalist argument firmly condemns it.

Second is the logically quite separate argument, from 'autonomy', against forced intrapersonal redistributions between a person's plans and projects. It is, after all, a central tenet of the liberal ethos that 'respecting' people means taking them as we find them.[59] It is important, in those terms, that people should be free to choose their own life plans for themselves; and it is equally important, in those terms, that once those choices have been made other people should respect them.[60]

Modern welfare economics grasps this point, albeit imperfectly. There, 'the criterion used for [specifying] an increase in an individual's welfare . . . [is] that he is in a chosen position'.[61] But surely taking people as we found them means respecting people's *actual* choices—ones that they *really made*, rather than ones they might have made in some counterfactual world that never has (and perhaps never will have) existed.[62] What we are supposed to be respecting is people's choices, not their disembodied preference orderings.[63] It would be flatly contrary to the fundamental ethos of liberal welfare economics to force people to consummate pareto-optimal deals, or to make such trades on their behalf without their permission.[64] Suppose someone has contrived to sell my house out from under me, without my consent. Surely it would not suffice for him to reply to my protests that he got an exceptionally good price for it and that, despite the fact it was not for sale, I certainly would have agreed to sell it for that price if only he had been able to contact me. Whether or not I would have agreed, the point remains that I did not. By virtue of that fact alone, my autonomy has been violated.[65]

[59] O. O'Neill, 14 *Philosophy and Public Affairs* 252 (1985).

[60] We are obliged to respect those choices, not necessarily for their own sake, but rather for the sake of the dignity of those making them; Goodin, *Political Theory and Public Policy* (above n 48) chap 5. By that standard, too, compensation$_2$ would constitute an inadequate substitute for compensation$_1$, and for much the same reason. Mucking about with a person's life plans, forcibly shifting him from one goal set to another (even if it is, from his own point of view, an equally good set of goals) is hardly the way to preserve the person's self-image or sense of dignity.

[61] I. M. D. Little, *A Critique of Welfare Economics* (Clarendon Press 1957) 37. Sometimes welfare economists phrase this test in terms of preferences or well-being, of course. But, operationally, they find themselves incapable of analysing these in any way except in terms of people's choices.

[62] R. M. Dworkin, *Taking Rights Seriously* (Duckworth 1977) chap 6; R. M. Dworkin, in M. Kuperberg and C. Beitz, (eds), *Law, Economics and Philosophy* (Rowman and Allanheld 1983) 123, 124–9.

[63] Nor is it their *reasons for choosing* that we are supposed to be respecting. It is true that there were various arbitrary forces shaping choices (prices, market conditions, opportunity sets and budget constraints), of course. But that does not make the choices, once made, any less *their* choices: A. Lerner, 62 *American Economic Review (Papers and Proceedings)* 258 (1972).

[64] B. Barry, in J. Elster and A. Hylland, (eds), *The Foundations of Social Choice Theory* (Cambridge Univ Press 1986) 11, 41. The same point is made in Sen's (above n 41, 93) parable of 'two boys who find two apples, one large, one small. Boy A tells boy B, "You choose". B immediately picks the larger apple. A is upset and permits himself the remark that this was grossly unfair. "Why?" asks B. "Which one would *you* have chosen, if you were to choose rather than me?" "The smaller one, of course," A replies. B is now triumphant: "Then what are you complaining about? That's the one you've got."'

[65] For the liberal, 'the conclusion that A should come about rather than B cannot shake itself clear from the requirement about the manner of its coming about, namely that [the person involved] should have chosen it'; J. Broome, 30 *Oxford Economic Papers* 313, 316 (1978). See similarly J. Kleinig, 8 *Canadian J of Philosophy (Supplement)* 91, 98 (1982), and Calabresi and Melamed (above n 11, 1126).

Means-replacing compensation$_1$ respects both of these values, whereas ends-displacing compensation$_2$ respects neither. Providing people with alternative means to the same ends (compensation$_1$) allows them to pursue the same, self-selected goals as before. That they are the 'same' ensures unity and coherence; that they are 'self-selected' ensures autonomy.[66] Compensation$_2$, in contrast, might leave people 'as well off as before', in some sense or another, but it forces them to pursue different goals than before. That they are different compromises unity and coherence; that they are forced compromises autonomy.

Compensation$_2$, in effect, forcibly pushes people along their indifference curves. The fact that a person remains on the same indifference curve means that, *ab initio*, he would have been equally prepared to accept either option, either his previous bundle of goods or his new bundle.[67] He *would* have been: but as a matter of personal history, he did not (his life has gone down a different track, now); and as a matter of public morality, no one ever asked (he did not consent to the change). Morally, both those facts are vital.[68] For those reasons, when a new bundle of goods is simply foisted upon people in compensation$_2$, whether or not it is an equally good bundle is simply irrelevant.

V. *Policy Implications*

In so far as we are counting on compensation to right what would otherwise constitute wrongful inflicting of harms upon people, we must respect the following precepts that follow from the arguments developed above.

(1) Prevention is better than compensation, where it is an irreplaceable object that would be lost.

The logic of this proposition is simple. If something irreplaceable is lost, only the weaker form of compensation$_2$ would be possible. People would be as well off but differently off than before. If the loss is prevented, however, that would leave them

[66] Respecting autonomy obviously means giving the person what he has selected, instead of giving him yet another choice between multiple ways of getting something else—in part because maximizing autonomy is not a matter of maximizing options, and in part because we reasonably doubt whether any of his subsequent selections will be honoured, either. A programme of strong, means-replacing compensation$_1$ may, in all sorts of ways, involve more interference with or intervention in a person's life than would a programme of weak compensation$_2$. (Rehabilitation is more intrusive than cash compensation, for example.) But, again, autonomy is not a simple matter of non-intrusiveness, either.

[67] Thomson, above n 10, chap 10, puts it in terms of your being willing, *ex ante* of your rights being violated, to sell their violator the right in exchange for that price being now paid as compensation.

[68] If people themselves happen to value 'unity and coherence' or 'autonomy' in their lives, then a more sophisticated welfare economist can easily accommodate these points by saying that to be 'as good' the new bundle of goods foisted upon people must compensate for those losses as well. A corollary to that proposition, though, would be that we are free to neglect these considerations altogether if the person himself is not concerned by them—with the paradoxical consequences for liberalism noted in J. S. Mill's discussion, in *On Liberty* (Parker 1859) chap 5, of allowing people to sell themselves into slavery.

in exactly the same position as before, still in possession of the irreplaceable object itself.[69]

This explains the differential, noted by several economists, between how much people are prepared to spend to protect certain things and how much they are prepared to insure them for. Zeckhauser offers the compelling example of a woman facing the risk of breast cancer. Imagine she is willing to spend £5,000 for medical treatment to reduce the risk of cancer from 10% to 5%. That implies that the value of a healthy breast to her is £100,000. Suppose now she is offered insurance at the rate of £20 of coverage per pound's premium. Does it necessarily follow that she will pay £5,000 more to cover the full £100,000 that the breast is worth to her? Zeckhauser concludes that it does not: since the insurance money would not restore the breast, 'it would be quite rational for her to insure no more than the medical expenses' of the mastectomy. Similarly, when a Constable painting valued at £100,000 turned out, after having been stolen, to have been insured for only £2,000, the vicar explained: 'We never had any intention of selling it and we could never replace it so there wasn't any point in insuring it for its full value'.[70]

This principle is also reflected in certain practices of the courts. Ordinarily, the courts let people do as they will; and they order tort damages *after* the fact if people have, in the end, caused others some harm. Sometimes, however, the 'nature of the interests' that stand to be harmed is such that damages would be a 'relatively inadequate remedy'. Where the interests that would be 'harmed by tortious conduct are so remote from the marketplace that . . . it is idle to speak of their compensation in terms of money', courts will not wait until after a tort has been committed. Instead, they will issue an injunction designed to prevent the tort from ever occurring.[71]

Finally, notice that much that presents itself as compensation policy might just be an oblique form of prevention policy. This is so because, in many realms of compensation policy, the compensation would have to be paid (in whole or in part, directly or indirectly) by the persons responsible for causing the damage. Tort law is the clearest example of this; a weaker one might be workmen's compensation,

[69] Introducing his discussion of public policy with respect to accidental injuries, Atiyah comments that 'compensation is nearly always second best; prevention is usually the first aim' (Cane, above n 18, 7). But he never explains why. The primacy of prevention might be overdetermined. Irreplaceability apart, psychometric evidence shows that people attach much more value to avoiding the loss of what they already have than to securing what would appear to be symmetrically large gains. See D. Kahneman and A. Tversky, 47 *Econometrica* 263 (1979); J. L. Knetsch and J. A. Sinden, 99 *Quarterly J of Economics* 507 (1984); and R. Gregory and T. McDaniels, 20 *Policy Sciences* 11 (1987); on the implications for the welfare economic analysis of law, see E. J. Mishan, 19 *Oxford Economic Papers* 255 (1967) and 9 *J of Economic Literature* 1 at 19 ff (1971).

[70] R. Zeckhauser, 23 *Public Policy* 419, 454 (1975); S. Reeve, *Colchester Evening Gazette*, 23 Oct 1985, 3; see more generally P. J. Cook and D. A. Graham, 91 *Quarterly J of Economics* 143 (1977). Another example of much the same form—offered by Culyer, above n 21, 23 and reproduced almost verbatim but without attribution by Haveman, Halberstadt and Burkhauser, above n 9, 30—leads Culyer (above n 21, 25) to conclude that 'in the preventive area, where we are considering measures to reduce the number of disabling events', the smaller *ex post* sum would be the proper measure of the cost of the loss. Surely the only reason the sum is smaller, however, is that the compensation is inadequate to cover the full loss, which is properly represented by the other, larger sum; it is that larger sum that thus represents the true social worth of a successful policy of prevention.

[71] Prosser and Wade, above n 1, secs 936, 944, 944 comment b. See similarly Williams and Hepple, above n 34, 68–73. Among the examples Prosser and Wade (above n 1, sec 944 comment b) give of such interests that qualify for protection by injunction are 'interests in privacy, personal reputation, domestic relations, and personal property that is especially valuable to the owner because of the sentiment he attaches to it'.

where the employer's contributions are uninsurable or where the premium paid for such insurance varies according to the number of claims the insured has lodged. Since the risk of incurring such expenses would presumably serve to deter people from actions likely to harm others, compensation policies in this way might double as prevention policies. It is hard to discern what the balance might be as between these two very different aims in present compensation schemes. But the prevention rationale clearly does explain what otherwise appear as anomalies in present policies, such as the awarding of compensation for 'loss of amenities' to a person who, through severe brain damage, has been rendered 'totally insensitive to his loss'. Here the deterrent/prevention rationale is clearly controlling. The principle at work is simply that 'it should not be cheaper to kill than to maim, and, further, it should not be cheaper to injure a person so severely that he is incapable of obtaining any enjoyment from a sum awarded to him as compensation than to injure him less severely'.[72] That argument has nothing to do with the adequacy of compensation for the victim, and everything to do with the adequacy of the deterrent for the tortfeasor.

(2) Where a lost object is replaceable, the compensation offered should include the closest possible substitute for that which has been lost.

The aim of that form of compensation which can legitimize otherwise illegitimate state action—compensation$_1$—is to allow people to remain in exactly the same position with respect to exactly the same ends as before the damage occurred. The goal is to make sure that means can be replaced without ends being displaced. The more nearly perfect the replacement (the better the substitute) that is being offered, the more nearly this goal of compensation$_1$ has been accomplished.[73]

This principle goes some way toward explaining why we are relatively comfortable in compensating people for losses that can be truly said to have some 'fair market value'. The advantage usually claimed for this class of cases is that here we can unambiguously fix a fair (ie, market) price on the losses.[74] But that, I think, is the smaller part of the story. The real advantage in such cases lies, I think, not in the fact that there is a *market price* for those things which are marketed. It lies instead in the fact that there is a *market* in those things which are marketed. That is to say, people can take the money they receive in compensation, go out into the marketplace, and buy another object just like the one they have lost.

[72] Williams and Hepple, above n 34, 83; see also Cane, above n 18, 187–8. On deterrence and accident prevention more generally, see Cane, above n 18, chap 24 and G. Calabresi, *The Costs of Accidents* (Yale Univ Press 1970).

[73] In so far as 'autonomy' is the value underlying our preference for compensation$_1$, we should wherever feasible give people a choice between the most perfect substitute or something else, if they preferred. (The argument in Section IV above is for the most perfect possible substitute to be *among* those compensations offered, merely.) That might argue for cash rather than in-kind compensation, at least in so far as 'the most perfect substitute' could itself be obtained in the market for cash. Often, of course, it could not.

[74] Corwin (above n 6, 402) and Calabresi and Melamed (above n 11, 1108) discuss this in connection with exercise of powers of eminent domain, Prosser and Wade (above n 1, sec 903 comment a) in connection with tort damages. Some go so far as to argue that the only reason we prohibit certain acts under the criminal law, rather than letting criminals 'buy out' their victims with compensation, lies in the difficulty of pricing what has been lost in a criminal assault: court-assessed damages 'represent only an approximation of the value of the object to its original owner and willingness to pay such an approximate value is no indication that it is worth more to the thief than to the owner'; Calabresi and Melamed, above n 11, (see similarly Nozick, above n 5, 64–5).

This principle also explains the emphasis upon *rehabilitation* in so many of our actual compensation policies, detailed in Section II. Rehabilitation, understood literally, consists in restoring lost functioning of that which has been damaged; understood metaphorically, it consists in substituting for that which has been damaged something that will perform much the same function. Occupational therapy is an example of the former, prosthetic devices of the latter.[75]

This emphasis upon rehabilitation also goes some way toward explaining why public policy should so often strive to aid the injured (and disabled, in particular) as a group rather than as individuals. As Donald Harris observes,

> Handicapped people are usually dependent on governmental or community projects to provide them with specially-adapted housing or transport, parking and recreational facilities, access to buildings open to the public such as museums, theatres, cinemas, etc. The common law notion of giving the individual his own sum of money to find his own facilities on an individual basis is not realistic in the modern world. . . .[76]

Giving someone who has been crippled monetary damages does not help him up the stairs to the City Council chambers, whose meetings he used regularly to attend. Building him a wheelchair ramp does. 'The importance of these facts is that they suggest that public expenditure of money to overcome difficulties of this kind may be a higher priority than more private compensation for disabilities as such.'[77]

(3) People should be compensated as best they can for irreplaceable objects once lost; but that does nothing to legitimize policies deliberately inflicting those losses.

Sometimes people suffer irreparable losses, despite our best efforts at preventing them. Or sometimes we find ourselves inflicting irreparable losses as part and parcel of some policy that is independently legitimized whether or not compensation is paid. Once irreplaceable objects have been lost, compensation$_2$ is the only possible remedy. It is a very inadequate remedy, to be sure: *ex hypothesi*, there are no close substitutes available. Still, inadequate though it may be, compensation$_2$ is surely better than nothing. There can be little doubt that it should be paid.[78]

We must, however, be very clear as to what its payment might accomplish. Payment of compensation in the strong sense—compensation$_1$—can right wrongs fully and completely legitimize our loss-inflicting course of conduct. Payment of compensation in the weak sense—compensation$_2$—cannot. In so far as losses are irreparable, compensation is necessarily inadequate. And in so far as compensation$_2$ is thus inadequate, so too is the plea that 'compensation has been (will be, could be) provided' inadequate to excuse a loss-inflicting course of action that would otherwise be illegitimate.

[75] Haveman, Halberstadt and Burkhauser, above n 9, chap 4.
[76] Harris, above n 27, 48.
[77] Atiyah, in Cane, above n 18, 379 ff.
[78] Calabresi and Melamed, above n 11.

The distinction I have in mind here can best be evoked by examples from criminal injuries compensation policies. It is one thing to pay the widow of a soldier killed by IRA snipers £100,000 in compensation after the fact; it is quite another to use that sum in deciding ahead of time whether or not to buy soldiers flak jackets that would save their lives.[79] Or, for another example, it is one thing to decide that we should pay rape victims £1,000 in compensation; but it would be quite another to decide that it would be cheaper to pay off the two victims that will predictably get raped in some particularly dark street than to install a £3,000 lighting system. That compensation of this sort is inadequate does not mean that it should not be paid at all. But it does mean that it should not be counted upon to right all the wrong. Prevention is still the best policy.

VI. Conclusion

For our conclusion, let us return to that classic cautionary tale concerning economism and public policy, the Roskill Commission. Among the things that needed to be calculated in reckoning the costs and benefits of a third London airport were the losses to homeowners who would be displaced. Just reckoning the value of a house at its market price obviously understates the true value of the house to the householder. After all, he declines to sell his house on the free market at the market price: what right do we then have to assume that he would be fully compensated for its loss by the same price he has already rejected when it is compulsorily purchased by the government?[80] So the Roskill Commission set about surveying residents, asking, 'What price would be just high enough to compensate you for leaving this house (flat) and moving to another area?'

The striking thing about this survey was that 8 per cent of respondents said that they would not move at any price. Now, as Mishan says, 'it may be that a good interviewer would have elicited a finite sum . . .—perhaps £50,000? or £5 million?' But, as he goes on to say, 'it is not altogether inconceivable that for some older, or unworldly, people all that [money] could buy for them would not suffice as compensation for having to live elsewhere'.[81]

Presumably few people would be so silly as to deny that with £5 million in compensation they would, in some sense, be better off moving out of their £5,000 house and living elsewhere. What these respondents would surely have said is not that they are better off, but rather that no amount of money can replace lost friends, etc. In my terms, it is the impossibility of compensation$_1$, not the inadequacy of compensation$_2$, that was at issue here.

[79] So, for example, if the flak jackets cost £100 each, they would be provided only if more than 1,000 soldiers will be shot in ways that would prove fatal without the jackets but would not prove fatal with the jackets; cf. Tullock, above n 52, 53–4. This leaves open the question of whether it is permissible to impose or incur mere risks of such losses. For diverse views on this, compare: Nozick (above n 5, 82 ff); Goodin, *Political Theory and Public Policy* (above n 48) 157–8; and Thomson, above n 10, chap 11.

[80] Of course, one of the reasons homeowners do not sell privately but might be fully compensated publicly is that the public would also compensate them for the costs of moving, which private purchasers would not.

[81] Mishan, above n 13, 462–3.

This, I dare say, is a common pattern. Most policies will probably run up against at least 8 per cent of losers who feel hard done by in some such way. That is not to say that we should not carry forth with the policy. There are all sorts of reasons for and against building a third London airport; the uncompensatable$_1$ loss of displaced residents is just one among many, and on balance we may well decide that it is best to go ahead with the policy. What we cannot say, however, is that since losers will (or could) be compensated, they have no grounds for complaint.

COMMENT

Calculating Lost Future Earnings Under Federal Law: Courts Must Consider Inflation As Well As The Earning Power Of Money†

I. INTRODUCTION

The principal goal of tort damages in personal injury or wrongful death cases is full compensation of the injured party.[1] Ideally, the plaintiff should be placed in the same position he would have occupied had the tort never occurred.[2] In calculating the lost earnings element of compensatory damages, the basic objective is to determine as accurately as possible the present sum of money that will replace the lost future wages.[3] Although periodic payments could be used, awards have traditionally been paid in a

† This comment received the 1985-86 "Best Comment Award" presented by the law firm of Snell & Wilmer, Phoenix, Arizona.

1. *See, e.g.*, Bussy v. Donaldson, 4 U.S. (4 Dall.) 206, 207 (1800); PROSSER AND KEETON ON THE LAW OF TORTS § 4, at 20 (W. Keeton 5th ed. 1984).

2. *See, e.g.*, Beaulieu v. Elliott, 434 P.2d 665, 670-71 (Alaska 1967) (citing MCCORMICK, DAMAGES § 86, at 304 (1935)); RESTATEMENT (SECOND) OF TORTS § 901 comment a (1977); Henderson, *The Consideration of Increased Productivity and the Discounting of Future Earnings To Present Value*, 20 SAN DIEGO L. REV. 307, 308 (1975) (citing F. HARPER & F. JAMES, THE LAW OF TORTS, § 24 & 25 (1956)).

3. Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 533 (1983) (citing D. DOBBS, LAW OF REMEDIES § 8.1 (1973)); *accord, e.g.*, Doca v. Marina Mercante Nicaraguense, S.A., 634 F.2d 30, 40 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981). In *Pfeifer*, the Supreme Court noted that in personal injury action, damages for lost earnings are awarded to compensate the *injured party* for loss; in a wrongful death action, "a similar but not identical item of damages" is awarded to compensate either the worker's survivors or his estate for the harm caused by the decedent's lost earning capacity. *Pfeifer*, 462 U.S. at 533 n.8. However, the problem of adjusting a lost earnings award for real wage growth, income taxes, inflation, and the earning power of money is the same for both kinds of actions. *Id.*

lump sum at the conclusion of the trial.[4]

This comment examines how federal courts consider the impact of inflation and the earning power of money in calculating lump sum awards. Section II discusses discounting to present value and concludes that discounting without considering inflation is acceptable only if prices decline or remain constant. Section III explains that although federal courts traditionally ignored inflation when estimating lost future earnings, they now reject this approach because it unfairly penalizes the plaintiff. Although the United States Supreme Court agrees that inflation must be considered when estimating and discounting lost earnings, the Court has refused to establish an exclusive federal procedure for doing so.[5] Therefore, Section IV discusses the various approaches courts currently use to account for inflation and the earning power of money when calculating lost future earnings. These include the total offset approach, the market interest rate approaches, and the below market interest rate approach. The policies underlying these approaches are analyzed, and the advantages and disadvantages of each approach are compared. Section V concludes that reliable data indicating how well the various approaches predict future earnings are currently unavailable. Therefore, a multidiscipline study group should test each approach's accuracy, efficiency, and predictibility by applying it to data from past cases. The Supreme Court should then adopt the best method as a rebuttable presumption, placing the burden of showing that another approach should be used on the party seeking to use it.

II. DISCOUNTING TO PRESENT VALUE

Discounting is used to determine the present value of money to be received sometime in the future.[6] Because the right to receive $1.00 in the future is worth less than $1.00 today, $1.00 to be received at a future time has a *present value* less than $1.00.[7] How much less depends on the

4. *Pfeifer*, 462 U.S. at 533.

5. *See infra* notes 74-83 and accompanying text.

6. "Discounting to obtain a present value is just the reverse of figuring the future value of a current investment that grows at some compound rate of interest." Carlson, *Economic Analysis: Courtroom Controversy: The Present Value of Future Earnings*, 62 A.B.A. J. 628, 629 (1976). The standard compound interest formula is $F=V(1+r)^n$, where F is the future value at the end of n periods, V is the present or beginning value, r is the periodic interest rate, and n is the number of periods hence. By manipulating the compound interest formula, one can derive the present value formula: $F \cdot [1/(1+r)^n] = V$, where $1/(1+r)^n$ is the discount factor used to reduce F, the future value desired, to V, the present value of F. For a discussion of discounting and compounding, see GOETZ, LAW AND ECONOMICS, ch. 3, at 158-63 (1st. ed. 1984). For a general discussion of discounting principles, see W. PYLE & K. LARSON, FUNDAMENTAL ACCOUNTING PRINCIPLES, ch. 12, at 13 (9th ed. 1981).

7. This assumes that the interest rate is positive. Hanke, *How to Determine Lost Earning Capa*

time period involved and at what interest rate the money can be invested.[8] The higher the discount rate, the lower the present value of the award.[9] Thus, discounting lost annual income estimates, prior to adding them to get the total amount necessary to compensate the plaintiff, substantially reduces lump sum awards.[10]

The Supreme Court first required lump sum damage awards for future benefits to be discounted to present value in 1916 in *Chesapeake & Ohio Railway v. Kelly*.[11] The Court reasoned that lump sum awards could be invested to earn additional money; therefore, they had to be reduced to present value to avoid overcompensating the plaintiff-investor.[12] By investing the discounted award, the plaintiff would earn interest that could be added to the original award, providing an income stream exactly equal to his lost earnings stream.[13] The Court stated that the plaintiff is entitled to a risk-free stream of future income to replace his lost earnings, and he cannot be expected to make risky investments[14] or exercise the financial skill of an investment expert;[15] therefore, the interest rates used to discount future earnings awards are those on safe investments yielding moderate returns.[16]

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ity, 27 PRAC. LAW. 27, 30 (1981).

8. For instance, the present value of $1.00 invested at 10% for 1 year is $.91; its present value is only $.83 if it is invested at 20%. Similarly, $1.00 invested at 10% for 20 years has a present value of only $.15, and if invested at 20%, it has a present value of a mere $.03. *Id.*

9. Carlson, *supra* note 6, at 629; Hadley & Rapp, *Estimating Future Lost Earnings, Some Common Problems*, 21 TRIAL 28, 31 (1985) (the present value obtained is extremely sensitive to the discount rate chosen).

10. Carlson, *supra* note 6, at 629.

11. 241 U.S. 485 (1916). In *Kelly*, the plaintiff brought a federal cause of action under the Federal Employer's Liability Act (FELA), 45 U.S.C. §§ 51-60 (1939), in state court. The Court ruled that the "proper measure of damages is inseparably connected with the right of action" and in FELA cases must be determined according to federal law. *Kelly*, 241 U.S. at 491.

12. *Kelly*, 241 U.S. at 489. In addition, the Court noted that the plaintiff's duty to mitigate damages requires him to invest his award, receive interest earnings on it, and thereby reduce the defendant's out-of-pocket payment. *Id.* at 489-90. *See* Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 536-37 & 537 n.20 (1983). Referring to the *Kelly* rule, the Court noted, "[a]lthough this rule could be seen as a way of ensuring that the lump-sum award accurately represents the pecuniary injury as of the time of trial, it was explained by reference to the duty to mitigate damages." *Id.* at 537 n.20.

13. Benich, *The Reverse Tax Effect in Wrongful Death or Injury Estimates*, 17 TRIAL 16 (1981).

14. *Kelly*, 241 U.S. at 490-91; *see Pfeifer*, 462 U.S. at 536-37.

15. *Kelly*, 241 U.S. at 490. The Court noted that earnings resulting from the investor's financial skill and experience were earned partly by the investor rather than solely by the investment. *Id.*

16. *Id.* at 490-91. Interpreted literally, this would require litigants to use Uunited States government securities to derive an appropriate discount factor because they are the safest investments available. Formuzis & Pickersgill, *Present Value of Economic Loss: A Guide to Jones & Laughlin v. Pfeifer*, 21 TRIAL 22, 24 (1985). Tort law supports the requirement that the rate of interest on risk-free securities is the appropriate rate of discount. Henderson, *supra* note 2, at 310 n.7. Once liability has been established the tortfeasor cannot rely on the probability that the plaintiff can recover part of

The economic rationale for discounting, as required by *Kelly*, was based on the economic history and theories of the latter nineteenth century.[17] During the late 1800's, the earning power of money was increasing as the United States experienced a deflationary economy. For example, between 1867 and 1896, price levels dropped by approximately forty percent.[18] Assuming that past trends would continue or at least that prices would remain constant,[19] courts sought to avoid giving plaintiffs a windfall.[20] Because it was "self evident that a given sum of money in hand is worth more than the like sum of money payable in the future,"[21] the award had to be reduced to present value by the interest rate the plaintiff could earn on "the best and safest investments."[22] If prices remained constant, discounting the award by the market interest rate would provide a sum of money whose principal and compound interest would exactly replicate the plaintiff's lost earnings.[23] If future prices declined, market rate discounting would allow the plaintiff slightly more than his losses because deflation would give him greater purchasing power.[24] Thus, courts were not penalizing plaintiffs by discounting without considering inflation as long as prices continued to decline or remained constant.[25]

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the damages by speculating in the securities market. *Id. Contra* Conklin, *Wrongful Death Damages: Expansion, Inflation, Discounts and Taxes—The Numbers Game*, 28 TRIAL LAW. GUIDE 249, 253 (1984) (the fiction of the half-witted plaintiff, who despite having hired skilled attorneys, will be helpless in the investment world, is one of the great jokes of damage calculations); Jarrell & Pulsinelli, *Obtaining the Ideal Discount Rate in Wrongful Death and Injury Litigation*, 32 DEF. L.J. 191, 192 n.1 (the plaintiff need only be sophisticated enough to hire an investment adviser); Comment, *Future Inflation, Prospective Damages, and The Circuit Courts*, 63 VA. L. REV. 105, 130 (1977) (a plaintiff receiving a lump sum award substantial enough to make inflation and discounting significant factors can afford to hire an expert financial adviser).

17. Henderson, *supra* note 2, at 309.

18. *Id.*

19. *Id.* (the best assumption that can be made about the future is that it will be like the past). *Contra* Formuzis & O'Donnell, *Inflation and the Valuation of Future Economic Losses*, 38 MONT. L. REV. 297, 299 (1977). During periods of price stability, economists commonly predicted future inflation by projecting the historical rate of inflation into the future. *Id.* However, this method of forecasting inflation is unacceptable because it is unreliable and speculative. *Id.*

20. *See, e.g.*, Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 536-37 (1983); *Kelly*, 241 U.S. at 489; O'Shea v. Riverway Towing Co., 677 F.2d 1194, 1199 (7th Cir. 1982); Beaulieu v. Elliott, 434 P.2d 665, 671 (Alaska 1967); Note, *Determining the Effect of Inflation on Lost Future Earnings: What Price Equity?*, 57 ST. JOHN'S L. REV. 316, 322 (1983) ("The impetus for discounting lost future earnings is to avoid giving the plaintiff a windfall . . . .").

21. *Kelly*, 241 U.S. at 489. This is because the plaintiff can invest the money and earn interest. *Pfeifer*, 462 U.S. at 536-37.

22. *Kelly*, 241 U.S. at 491.

23. Henderson, *supra* note 2, at 309.

24. *See Pfeifer*, 462 U.S. at 536-37, 540; Henderson, *supra* note 2, at 309. The plaintiff would earn interest income sufficient to maintain his existing nominal income; thus, he would be able to receive somewhat more than what his lost wages would have been in a deflationary economy.

25. Henderson, *supra* note 2, at 309.

III. The Supreme Court's Decision on Inflation and Lost Future Earnings

Since World War II, however, wages as well as prices have increased consistently,[26] and inflation has become a "permanent fixture in our economy."[27] The advent of inflation,[28] as an important American economic problem,[29] forced courts to reconsider their traditional policy of discounting by the market rate of interest without considering the impact of inflation on future wages.

A. Rejection of the Traditional Approach

Traditionally, most federal courts were reluctant to recognize inflationary factors in estimating lost future earnings[30] because they considered

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26. *Pfeifer*, 462 U.S. at 538. Wages have increased regularly since World War II, primarily because of inflation and increased labor productivity. Comment, *Inflation, Productivity, and the Total Offset Method of Calculating Damages for Lost Future Earnings*, 49 U. CHI. L. REV. 1003, 1007 (1982). Between 1947 and 1973, average, nonfarm sector compensation increased by a compound rate of 5.6%, and the consumer price index increased by a compound rate of 2.8%. Henderson, *supra* note 2, at 311, 315. Wage increases were due to productivity gains, inflation, and unionization. *Id.* at 314-15. Although productivity increases were the major cause of the rise in money earnings between 1947 and 1973, inflation became a more significant factor in wage increases after 1965. *Id.* at 315-16.

27. *Pfeifer*, 462 U.S. at 538. *See, e.g.*, Doca v. Marina Mercante Nicaraguense, S.A., 634 F.2d 30, 37 (2d Cir. 1980) ("In short, courts cannot fail to recognize that inflation is a dominant factor on the current economic scene and, despite episodic recessions, is likely to be so for the forseeable future."), *cert. denied*, 451 U.S. 971 (1981); Henderson, *supra* note 2, at 318, 322 (some inflation is inevitable because monetary and fiscal policy are both aimed at achieving full employment, and falling prices defeat this goal by adversely affecting business expectations); Note, *supra* note 20, at 324-25 & 324 n.36 (citing HOUSE COMM. ON THE BUDGET, REPORT OF THE TASK FORCE ON INFLATION, H.R. REP. NO. 12, 96th Cong., 1st Sess. 24-26 (1980) [hereinafter TASK FORCE REPORT]). The TASK FORCE REPORT summarizes price history in the United States over the post World War II period. *Id.* Combining statistics with explanations, it explains why inflation has become such a persistent problem. *Id.*

28. Inflation is defined as "a general increase in the price level and refers to an average change in all prices." Note, *supra* note 20, at 318 (quoting TASK FORCE REPORT, *supra* note 27, at 27). *See also* Henderson, *supra* note 2, at 318 ("inflation is defined as a rise in the general price level. . . .").

29. Note, *supra* note 20, at 324-25 & 324 nn.36-37 (citing TASK FORCE REPORT, *supra* note 27, at 24). *See* Henderson, *supra* note 2, at 309-10.

30. *Pfeifer*, 462 U.S. at 539-40. *See, e.g.*, Johnson v. Penrod Drilling Co., 510 F.2d 234, 241 (5th Cir.) (en banc), *cert. denied*, 423 U.S. 839 (1975), *overruled*, Culver v. Slater Boat Co., 688 F.2d 280 (5th Cir. 1982) [hereinafter "*Culver I*"], *overruled*, Culver v. Slater Boat Co., 722 F.2d 114 (5th Cir. 1983) (en banc) [hereinafter "*Culver II*"]; Sleeman v. Chesapeake & Ohio Ry., 414 F.2d 305, 307-08 (6th Cir. 1969). In *Penrod*, the Fifth Circuit refused to consider future inflation because it could not "so surely discern the shadow of inflation as a coming event to warrant requiring its inclusion in a present rule for calculating future damages." *Penrod*, 510 F.2d at 236. Thus, lost future earnings were to be computed without inflation and discounted to present value using "an appropriate interest rate prevailing at the time and place of trial." *Id.* at 237. In *Sleeman*, a case based on federal law, the Sixth Circuit found error in the trial court's failure to discount an award to present value based on the theory that inflationary trends would offset the present value reduction. *Sleeman*, 414

them "too speculative a matter for judicial determination."[31] Courts re
quired the plaintiff, in presenting evidence that his wages would increas
due to individual and societal factors, to prove that these factors wer
neither influenced by nor intertwined with future price inflation.[32] Be
cause inflation is implicitly incorporated in market interest rates, court
using the traditional approach considered inflation when discounting fu
ture earnings, but ignored it when estimating them. In inflationary per
ods, this asymmetrical treatment systematically undercompensated th
plaintiff and gave the defendant a windfall.[33]

This inequity resulted in part from the nature of interest rates.[34] Ma
ket interest rates on risk-free investments are determined by two el
ments: the real interest rate representing the price of money in an infl
tion-free economy, and an additional percentage equal to the anticipat
inflation rate.[35] In a constant dollar economy where prices are expected
remain stable, the market interest rate exactly equals the real price
money because there is no inflationary factor. If the market operated
perfect information, it could reliably forecast future inflation and adj
the market interest rate to prevent the investor from losing purchasi
power caused by rising prices.[36] Because of the adjustment process, t
investor would always receive a positive real return on his money.[37] Si
ply put, interest rates would rise and fall perfectly with inflationary

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F.2d at 307. Although recognizing that economic history indicates that the courts treat a plai
unfairly when they calculate his lost future earnings based solely on his present wages, the S
Circuit admonished the lower courts not to "explore such speculative influences on future damag
inflation and deflation." *Id.* at 305, 307. Holdings such as these have caused at least one commen
to conclude that the federal appellate level is the segment of the judiciary with the most outm
economic views. Henderson, *supra* note 2, at 307, 319, 327.

31. *Penrod*, 510 F.2d at 241.

32. Higginbotham v. Mobil Oil Corp., 545 F.2d 422, 434-35 (5th Cir. 1977), *rev'd on*
grounds, 436 U.S. 618 (1978). As a practical matter, the *Penrod-Higginbotham* ruling prevente
plaintiff from presenting "evidence of likely wage increases based upon merit or productivity,
on a misreading of *Penrod* or a perceived (and sometimes actual) impossibility of separatin
inflationary elements from admissible merit-productivity increases." *Culver I*, 688 F.2d at 292

33. *See, e.g., Pfeifer*, 462 U.S. at 540; *Culver I*, 688 F.2d at 295; Doca v. Marina Mer
Nicaraguense, S.A., 634 F.2d 30, 38 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981); Coyne
sent Value of Future Earnings: A Sensible Alternative To Simplistic Methodologies, 49 INS. C
J. 25, 25-26 (1982); Henderson, *supra* note 2, at 310; Note, *supra* note 20, at 322.

34. *See* I. FISHER, APPRECIATION AND INTEREST 75 (1896).

35. *See, e.g.*, I. FISHER, THE THEORY OF INTEREST 43 (1930); Carlson, *supra* note 6, a
Comment, *supra* note 26, at 1009; Comment, *supra* note 16, at 128-30; Note, *supra* note 20, a

36. *See, e.g.*, O'Shea v. Riverway Towing Co., 677 F.2d 1194, 1199 (7th Cir. 1982); Com
supra note 16, at 129. Lenders must receive a market interest rate greater than the inflation
make any real purchasing power gains from their investments.

37. In a stable economy or an economy which predicts inflationary or deflationary trend
fectly, the real rate of interest would always be positive because an investor must be "paid" to
present consumption. *See* Comment, *supra* note 16, at 129 (citing I. FISHER, *supra* note 35,

pectations, protecting investors from anticipated price changes.

Unfortunately, in the real world, inflation is not perfectly foreseeable; therefore, market expectations of inflation or deflation lag behind actual changes.[38] Interest earnings cannot fully compensate the plaintiff because the market interest rate lags behind unexpected changes in the price index causing fluctuations in the *real* interest rate.[39] Thus, because interest rates contain an anticipated rather than an actual inflationary element,[40] when unexpectedly high inflation occurs, actual inflation exceeds anticipated inflation, causing the plaintiff-investor to lose real purchasing power.

Furthermore, the inflationary factor in interest (discount) rates is only designed to compensate the investor for loss of purchasing power in the principal invested and interest earnings on that amount.[41] At most, the discount rate will compensate the plaintiff for inflationary and real earning effects on his discounted award.[42] It cannot compensate him for inflation-related wage increases.[43] By investing his award at the "inflation-adjusted" interest rate used to discount his earnings to present value, the plaintiff could at most maintain his nominal income.[44] He would not be able to replicate his lost earnings in an inflationary economy.[45] Thus, an award for lost future earnings calculated in the traditional manner would necessarily undercompensate the plaintiff unless he lived in an inflation-

38. *See generally* I. FISHER, *supra* note 35, at 36-44.

39. *Id.* at 43-44. These real world qualifications caused Irving Fisher, the father of modern interest theory, to state:

> When the cost of living is not stable, the rate of interest takes the appreciation and depreciation into account to some extent, but only slightly and, in general, indirectly. That is, when prices are rising, the rate of interest tends to be high but not so high as it should be to compensate for the rise; and when prices are falling, the rate of interest tends to be low, but not so low as it should be to compensate for the fall.

Id. at 43.

40. Comment, *supra* note 16, at 128 (citing Gibson, *Interest Rates and Inflationary Expectations: New Evidence*, 62 AM. ECON. REV. 854, 855 (1972); Sargeant, *Anticipated Inflation and the Rate of Interest*, 86 Q.J. ECON. 212, 212-13 (1972)).

41. *See, e.g.*, O'Shea v. Riverway Towing Co., 677 F.2d 1194, 1199 (7th Cir. 1982); Anderson & Roberts, *Rejoinder and Clarification of Zocco-Ledford's "Penrod Overruled: Implication and Shortcomings in Culver,"* 30 LOY. L. REV. 87, 97-98 (1984); Note, *supra* note 20, at 322-23.

42. *See, e.g.*, *O'Shea*, 677 F.2d at 1199.

43. *Id.*

44. Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 540 (1983); *O'Shea*, 677 F.2d at 1199. If the inflationary predictions contained within the interest rate were too low, the plaintiff could not even maintain his nominal income.

45. *Pfeifer*, 462 U.S. at 540; *O'Shea*, 677 F.2d at 1199. If his award was discounted by 10%, he could recoup this 10% by investing the lump sum award at a 10% compound interest rate. However, if prices had increased by 8%, he could not recover this 8% real loss of purchasing power because his estimated earnings had not been increased by a compound factor to account for inflation induced wage growth. *See* Carlson, *supra* note 6, at 629.

free economy or it was assumed that his wages would have remained constant throughout his worklife.[46]

As long as inflation rates remained low, this inequity was assumed minimal and thus disregarded by courts and litigants alike.[47] However, double digit inflation in the 1970's forced the courts to reevaluate their positions. A consensus of the circuit courts rejected the traditional approach because it unfairly prevented plaintiffs from explicitly considering inflation, while allowing defendants to reduce the award by a discount factor comprised largely of an inflation premium.[48] In 1983, the Supreme Court supported this consensus, concluding that inflation "ideally should affect both stages of the calculation."[49]

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46. *See, e.g.*, Carlson, *supra* note 6, at 629; Henderson, *supra* note 2, at 310; Note, *supra* note 20, at 323.

47. *Pfeifer*, 462 U.S. at 540; Henderson, *supra* note 2, at 320.

48. *Pfeifer*, 462 U.S. at 540-41. *See, e.g.*, *Culver I*, 688 F.2d 280, 286 (5th Cir. 1982) (In a maritime personal injury case, the Fifth Circuit overruled *Penrod*, finding that "discounting an award in this manner results in unfairness to a plaintiff or his beneficiaries."); Pfeifer v. Jones & Laughlin Steel Corp., 678 F.2d 453, 461 (3d Cir. 1982) (In a Longshoremen's and Harbor Workers' Compensation Act (LHWCA), 33 U.S.C. §§ 901-950 (1976), case, the Third Circuit adopted the total offset approach as a rule of federal law, noting that "an honest and accurate calculation must consider the stark reality of inflationary conditions."), *rev'd on other grounds*, 462 U.S. 523 (1983); O'Shea v. Riverway Towing Co., 677 F.2d 1194, 1200 (7th Cir. 1982) (In a tort action under admiralty jurisdiction, the Seventh Circuit required "that inflation be treated consistently in choosing a discount rate and in estimating the future lost wages to be discounted to present value using that rate."); Doca v. Marina Mercante Nicaraguense, S.A., 634 F.2d 30, 38 (2d Cir. 1980) (In a personal injury action brought under the LHWCA, the Second Circuit considered "whether inflation, as a component of interest rates, should be considered for the defendant (by discounting at the prevailing interest rate) but ignored for the plaintiff (by rejecting any compensating adjustment for inflation)." The court concluded that "inflation is not too speculative to be taken into account in determining awards for future lost wages."), *cert. denied*, 451 U.S. 971 (1981); Steckler v. United States, 549 F.2d 1372, 1378 (10th Cir. 1977) (In a Federal Tort Claims Act (FTCA), 28 U.S.C. § 2674 (1976), action, the Tenth Circuit "approved the trier of fact taking into account estimated changes in the purchasing power of money, and at the same time discounting the future income stream to its present value."); United States v. English, 521 F.2d 63, 75 (9th Cir. 1975). (Applying California law in a FTCA case, the Ninth Circuit stated:

> [I]nflation has become a considerably more important factor in our economic lives. Ignoring inflation is, in essence the same as predicting it will not occur, or that its effects will be *de minimis*. While the administrative convenience of ignoring inflation has some appeal when inflation rates are low, to ignore inflation when the rates are high is to ignore economic reality.

The Ninth Circuit required the lower court to "first estimate future income and expenses, taking into account estimated changes in the purchasing power of the dollar, and then discount this future income stream to its present value.").

49. *Pfeifer*, 462 U.S. at 538. The Supreme Court supported the consideration of inflation in dicta in Grunenthal v. Long Island R.R., 393 U.S. 156 (1968), *rev'g* 388 F.2d 480 (2d Cir.), *rev'g* 299 F. Supp. 813 (S.D.N.Y. 1967), and in Norfolk & Western Ry. v. Liepelt, 444 U.S. 490, *reh'g denied*, 445 U.S. 972 (1980). In *Grunenthal*, the Court allowed the trial judge to consider recent wage increases for work similar to the plaintiff's and the likelihood that similar increases would continue. *Grunenthal*, 393 U.S. at 160. In *Liepelt*, the Court rejected the argument that future income taxes

B. Calculating Lost Earnings: The Supreme Court's Guidelines

In *Jones & Laughlin Steel Corp. v. Pfeifer*,[50] the Supreme Court recognized that inflation is an economic reality and held that courts must consider its impact when calculating lost earnings under the Longshoremen's and Harbor Workers' Compensation Act (LHWCA).[51] Although the Court outlined a two-step calculation process[52] and analyzed the relevant factors to be considered in both an inflation-free[53] and an inflationary economy,[54] the Court declined to elect an exclusive federal procedure for determining the impact of inflation on lost earnings awards.[55]

1. Calculating Lost Earnings in an Inflation-free Economy

Even in an inflation-free economy, a two-step calculation process is necessary: annual losses are estimated and then adjusted to account for the earning power of money.[56]

a) *Estimating the Annualized Stream of Lost Income*

To calculate a lost future earnings award, the trier of fact must first predict what the victim's annual earnings would have been throughout his worklife had he not been disabled or killed.[57] The victim's work life expectancy is not certain because he could have died or been disabled at any time.[58] Although more accurate estimates can be obtained if the predicted annualized earnings are discounted by the probability of the victim re-

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were too speculative or complex to be considered in a FELA wrongful death case. *Liepelt*, 444 U.S. at 494. Although admitting that many variables could affect the wage earner's future tax liability, the Court noted that *future inflation*, employment, health, personal expenditures, and interest rates were also "matters of estimate and prediction," which might require protracted expert testimony. *Id.* In permitting admission of economic evidence, the Court recognized that trial courts and counsel had developed "effective methods" of presenting understandable expert calculations to juries that are "increasingly familiar with the complexities of modern life." *Id.*

50. 462 U.S. 523 (1983).

51. *Id.* at 547, 552-53. In *Pfeifer*, the Court reviewed the impact of inflation on a personal injury award to a longshoreman under section 905(b) of the Longshoremen's and Harbor Workers' Compensation Act (LHWCA), 33 U.S.C. §§ 901-950 (1976). *Pfeifer*, 462 U.S. at 525.

52. *Pfeifer*, 462 U.S. at 533-47. For further examples of the two-step method of determining lost future earnings, see Deakle v. Graham & Sons, 756 F.2d 821 (11th Cir. 1985); Taenzler v. Burlington N., Inc., 608 F.2d 796 (8th Cir. 1979); Comment, *supra* note 26, at 1004-06.

53. *Pfeifer*, 462 U.S. at 533-38.

54. *Id.* at 538-53.

55. *Id.* at 546.

56. *Id.* at 536.

57. *Id.* at 533. The prediction stage is extremely fact oriented and case specific. 22 AM. JUR. 2D *Damages* § 93 (1965); Comment, *supra* note 26, at 1005.

58. *Pfeifer*, 462 U.S. at 533. For an example of a reduced earning calculation adjusted for the probability of living, see Hanke, *supra* note 7, at 28-33.

maining alive and able to work,[59] average work life expectancies are often assumed or stipulated as a means of simplfying the calculations.[60]

Beginning with the worker's annual salary at the time of injury, lost income is estimated for each year of the victim's worklife.[61] A number of adjustments should be made to these annual figures.[62] If sufficient proof is offered, installments may be increased to reflect real wage gains caused by increases in societal productivity[63] or collective bargaining negotiations.[64] Where reliably demonstrated, increases resulting from "seniority," "experience" or "merit" raises, promotions, or occupation changes should be added in the appropriate year.[65] Fringe benefits, such as company paid insurance, pension and retirement benefits, and in-kind services, should also be added in the year they would have accrued.[66] Similarly, unreimbursed costs such as work-related transportation and uniform costs, as well as state and federal income taxes, should be deducted.[67]

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59. *Pfeifer*. 462 U.S. at 533-34. *See* R. GOETZ, *supra* note 6, at 208-11. Earnings estimates should be adjusted for the joint probability of the victim's being alive, participating (i.e., not retired), and employed. *Id*. The expected value method is not only conceptually superior to the average life expectancy method, but also gives much lower results. *Id*.

60. *Pfeifer*, 462 U.S. at 533-34. For example, in *Pfeifer*, the parties agreed that Mr. Pfeifer would have continued to work until age 65. *Id*.

61. *Id*. at 534. The Court noted that the common practice of asssuming the worker would have received his earnings annually rather than weekly or biweekly is "another distorting simplification." *Id*. at 534 n.11. *See* Deakle v. Graham & Sons, 756 F.2d 821, 830 (11th Cir. 1985) (citing *Pfeifer*, 462 U.S. at 533-38) ("The goal is to replicate as accurately as possible, in annual installments,[6] the injured plaintiff's lost stream of future income."); *Id*. at 830 n.6 (citing *Pfeifer*, 462 U.S. at 534 n.11) ("The lost stream of income is computed as a series of *annual* installments out of convenience."); Culver v. Slater Boat Co. (*Culver II*), 722 F.2d 114, 117-18 (5th Cir. 1983) (en banc).

62. *Pfeifer*, 462 U.S. at 534-36 (quoting C. MCCORMICK, DAMAGES § 86, at 300 (1935)) ("[T]he 'estimate of the loss from lessened earnings capacity in the future need not be based solely upon the wages which the plaintiff was earning at the time of his injury.' ").

63. *Id*. at 535-36 (citing Henderson, *supra* note 2, at 310-20). Societal productivity gains, resulting from technological advances increasing the amount of real output of gross national product per hour of labor, have been "a permanant feature of the national economy since the conclusion of World War II." *Id*. *See* Formuzis & Pickersgill, *supra* note 16, at 22-23 (citing *Economic Report of the President 1984*, at 266) (the annual longrun labor productivity increases for the private business sector from 1947 through 1983 ranged from 2.0% to 2.7%).

64. *Pfeifer*, 462 U.S. at 536.

65. *Id*. at 535 (citing Fitzpatrick, *The Personal Economic Loss Occassioned by the Death of Nancy Hollander Feldman: An Introduction to the Standard Valuation Procedure*, 1977 ECONOMIC EXPERT IN LITIGATION NO. 5, 25, 33-39 (Defense Research Institute, Inc.); Henderson, *Income Over the Life Cycle: Some Problems of Estimation and Measurement*, 25 FED'N INS. COUNS. Q. 15 (1974)). In *Pfifer*, the Court noted that "[i]f foreseeable real wage growth is shown, it may produce a steadily increasing series of payments . . . ." *Id*. at 536 n.19.

66. *Id*. at 534 (citing Fitzpatrick, *supra* note 65, at 27) & n.12. As the Court noted, benefits are often excluded to simplify the calculations. *Id*. at 534 & n.12.

67. *Id*. at 534. In wrongful death cases, the victim's personal expenses also are deducted. *See, e.g.*, DeLucca v. United States, 670 F.2d 843 (9th Cir. 1982). In personal injury cases where the plaintiff has not been totally disabled, the fact finder must forecast both the plaintiff's pre-injury and post-

b) Selecting and Applying an Appropriate Discount Rate

Even in an inflation-free economy, the lost earnings award cannot be derived simply by totalling the annual estimates.[68] Because damage awards are paid in a lump sum, the plaintiff can invest some or all of the award and earn additional money.[69] Thus, the fact finder must select an appropriate discount rate,[70] based on interest rates available on safe investments, and apply this rate to each estimated annual installment to reduce it to its present value.[71] Because the annual estimates are in after-tax terms, the discount rate should also be the after-tax rate of return to the plaintiff.[72] Finally, by totalling the discounted annual estimates, the fact finder determines the lump sum award representing the present value of the lost stream of earnings in an inflation-free economy.[73]

2. Calculating Lost Earnings in an Inflationary Economy: Inflation Should Affect Both Stages of the Calculation

Because inflation affects both wages and the market rate of interest, it should be considered at both stages of the calculation.[74] Price inflation is an additional societal factor which may, if sufficiently proven, be used to increase the worker's annual lost earnings.[75] Because the market interest rates used to select the appropriate discount factor include an estimate of future inflation, inflation is implicitly being considered in the discounting stage as well.[76]

The circuit courts generally agree that inflation should be considered; however, they do not agree on how it should be done.[77] The Supreme Court in *Pfeifer* felt no one *best* means of determining inflationary impact existed because each of the methods being used had questionable premises or practical disadvantages.[78] Thus, while requiring the lower courts to ac-

injury annual earnings and find the yearly differences between the two. *See, e.g.*, Deakle v. Graham & Sons, 756 F.2d 821, 830-32 (11th Cir. 1985); Hanke, *supra* note 7, at 28 (Using the "with and without principle," litigants estimate lost earnings before and after the injuries. The difference is the victim's net loss).

68. *Pfeifer*, 462 U.S. at 536.
69. *Id.*
70. *See supra* notes 6-17 and accompanying text.
71. *Pfeifer*, 462 U.S. at 536-38.
72. *Id.* at 537.
73. *Id.* at 538.
74. *Id.*
75. *Id.*
76. *Id.* at 538-39.
77. *Id.* at 540-41.
78. *Id.* at 539-47. The Court stated that lost earnings calculations arise in many different contexts and can never be more than rough approximations. *Id.* at 546-47. They are made even less precise by

count for inflation at both stages of the calculation, the Court refused to establish an "exclusive" federal procedure for calculating lost earnings awards in an inflationary economy.[79] The Court merely required the trial court to choose a discount rate based on the same factors used to estimate the lost stream of earnings.[80] In a unanimous decision, the Court remanded the case, instructing the district court to *deliberately* choose a discount rate rather than assuming it was required to follow state law.[81]

After rejecting the traditional approach and requiring courts to consider inflation's impact on lost earnings, the Supreme Court noted several acceptable ways of dealing with inflation.[82] Alternatives include the total offset, the market interest rate, and the real interest rate approaches.[83]

IV. METHODS OF ACCOUNTING FOR THE IMPACT OF INFLATION ON AWARDS FOR LOST FUTURE EARNINGS

A. The Total Offset Approach

The total offset approach[84] is the most radical departure from the traditional approach because it does not discount awards to their present value. Rather, it assumes that certain elements equal and therefore completely offset the discount rate. Although all courts using this approach consider inflation a proper factor to be offset, they do not agree on what other elements should be used.

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sustained inflation, and the damage awards often bear little relation to the lost wages they are intended to replace. *Id.* Moreover, lost earnings awards are often overshadowed by awards for pain and suffering, which account for approximately 72% of damages in personal injury cases. *Id.* at 552 & n.35.

79. *Id.* at 538, 546.

80. *Id.* at 547.

81. *Id.* at 553. The district court improperly relied on Pennsylvania case law when deciding to use the total offset approach to deal with inflation. *Id.* at 526-28.

82. *Id.* at 541-46.

83. *Id.* The Court noted that two circuits had specifically allowed litigants to choose the most appropriate method. *Id.* at 543-44. In 1982, both the Fifth and Seventh Circuits decided to let litigants choose whether to exclude evidence of future inflation and then discount by a "real" interest rate, or to predict effects of future inflation on wages and then discount using market interest rates. Culver v. Slater Boat Co. (*Culver I*), 688 F.2d 280, 308-10 (5th Cir. 1982), *overruled*, *Culver II*, 722 F.2d 1141 (5th Cir. 1983) (en banc); O'Shea v. Riverway Towing Co., 677 F.2d 1194, 1200 (7th Cir. 1982). Similarly, other ciruits had also refused to require litigants to use "any one particular method" to account for inflation when "estimating lost future wages." *E.g.*, Doca v. Marina Mercante Nicaraquense, S.A., 634 F.2d 30, 39 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981).

84. The total offset approach is sometimes referred to as the Alaska rule because the Alaska Supreme Court was the first to establish it.

1. The Alaska Rule

The total offset approach was first developed by the Alaska Supreme Court in *Beaulieu v. Elliot*.[85] The court rejected the traditional approach because it unjustly ignored inflation and wage increases.[86] By eroding the moderate interest earned on "safe" investments, inflation forced the plaintiff to invest in risky enterprises which promised yields greater than the offsetting annual inflation.[87] Believing it unfair to force the plaintiff to risk losing his future earnings, the court held that fact finders should not reduce an award for lost future earnings to present value.[88] Instead, the court presumed that price inflation and real wage increases fully offset the market interest rate; therefore, the court held that the trier of fact is not required to estimate any of the three.[89]

Nine years later, in *State v. Guinn*,[90] the Supreme Court of Alaska noted a distinction between individual and societal real wage increases and refined its approach.[91] The court held that "certain and predictable" wage increases, such as automatic seniority raises, should be considered when calculating lost earnings because they increase accuracy.[92] Promotions may also be considered if evidence shows they are likely to occur.[93] In *Alaska Airlines, Inc. v. Sweat*,[94] the court limited *Beaulieu's* reference to wage increases "to those attributable primarily to inflation" and held that the market interest rate did not offset merit increases which the plaintiff could show were reasonably certain to occur "separate and apart from increases in the general wage level."[95] As *Guinn* and *Sweat* clearly indicate, Alaska courts will admit evidence of reasonably certain and specific future wage increases.[96] Thus, only inflation, societal sources of wage

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85. 434 P.2d 665 (Alaska 1967).
86. *Id.* at 671-72.
87. *Id.* at 671.
88. *Id.* *Beaulieu*'s progeny have discarded the "risky investment" rationale, relying instead on the *Beaulieu* court's assertion that inflation approximately offsets any gain an ordinary investor could be expected to earn on his lump sum award. These courts also adopt *Beaulieu*'s supporting rationale that refusing to consider speculative future wage increases reduces the possibility of unduly high awards. *See, e.g.*, Alaska v. Harris, 662 P.2d 946, 947 (Alaska 1983); State v. Guinn, 555 P.2d 530, 545 (Alaska 1976).
89. *Beaulieu*, 434 P.2d at 671-72.
90. 555 P.2d 530 (Alaska 1976).
91. *Id.* at 546.
92. *Id.* Because the goal is to estimate lost earnings as accurately as possible, "certain and fixed wage increases" cannot be ignored without distorting the prediction. *Id.*
93. *Id.* at 546 n.39.
94. 568 P.2d 916 (Alaska 1977).
95. *Id.* at 937.
96. *Harris*, 662 P.2d at 948. In *Harris*, the court held that the lower court properly considered evidence of future wage increases guaranteed by a union contract, where they were fixed and certain

growth, and individual factors that are not "certain and predictable" are used to offset the failure to reduce the lost earnings award to present value.[97]

2. The Pennsylvania Rule

Following the Alaska court's lead, the Pennsylvania Supreme Court in *Kaczkowski v. Bolubasz*,[98] rejected the traditional approach and required inflation and productivity to be considered in calculating lost future earnings.[99] Holding "as a matter of law that future inflation shall be presumed equal to future interest rates with these factors offsetting," the court adopted a form of the total offset approach.[100] The court viewed the total offset approach as the most judicially efficient and predictable alternative because it eliminates the need to consider inflation and present value discounting.[101] In addition, it was as accurate, if not more accurate, than alternative methods.[102]

Unlike the Alaska Supreme Court, the Pennsylvania court did not limit the plaintiff to introducing evidence of "certain and predictable" individual sources of wage increases. The court allowed the plaintiff to introduce evidence of both individual and societal factors affecting wage growth; however, it held that evidence of future inflation was inadmissible.[103] The court reasoned this method was more accurate than the Alaska approach because the trier of fact could make a more informed estimate of the victim's lost earnings.[104] Furthermore, the Pennsylvania court felt that the Alaska court's view that merit raises are "speculative" was too similar to the previously rejected traditional approach and that it unfairly discriminated against employees who were likely to receive future merit in-

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rather than cost-of-living increases tied to the Consumer Price Index. *Id.*

97. *Guinn*, 555 P.2d at 546-47. *See also* Pierce v. New York Central R.R., 304 F. Supp. 44 (W.D. Mich. 1969) (price inflation and societal sources of wage inflation offset interest rate); Gowdy v. United States, 271 F. Supp. 733 (W.D. Mich. 1967) (same), *rev'd on other grounds*, 412 F.2d 525 (6th Cir.), *cert. denied*, 396 U.S. 960 (1969).

98. 491 Pa. 561, 421 A.2d 1027 (1980).

99. *Id.* at 1034. The court concluded that neither inflation nor productivity are speculative, and both can be defined and predicted by economic experts. It noted that sophisticated and refined economic forecasting tools are available and relied upon by government agencies, corporations, and financial institutions. Given the advances made by the science of economics, the court concluded there existed the requisite "reasonable basis in fact" for it to consider inflation and productivity when computing lost earnings awards. *Id.* at 1032-33.

100. *Id.* at 1038-39.

101. *Id.* at 1038. Moreover, the court felt that by making awards more predictable, the total offset approach would encourage out-of-court settlements. *Id.* at 1032.

102. *Id.* at 1038.

103. *Id.* at 1036-37.

104. *Id.* at 1037.

creases.[105] Thus, while allowing fact finders to consider all forms of real wage increases, the Pennsylvania court required litigants to use a total offset approach in accounting for inflation.[106]

3. Total Offset and the Federal Circuit Courts

The total offset approach has not been popular among the federal circuit courts.[107] In *Taenzler v. Burlington Northern, Inc.*,[108] the Eighth Circuit held that the present value discount requirement precluded use of the total offset method in federal claims.[109]

In *United States v. English*,[110] the Ninth Circuit held that in computing a damage award under California law, the trier of fact must consider competent evidence of inflation.[111] The court stated "the [trial] court may not *assume* that the discount rate and the inflation rate will net to zero."[112] In subsequent cases, however, the Ninth Circuit has held that if

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105. *Id.*

106. *Id.* at 1038-39. *Accord* Freeport Sulphur Co. v. S/S Hermosa, 526 F.2d 300, 310-12 (5th Cir. 1976) (Wisdom, J., concurring).

107. Most circuit courts have refused to adopt a particular method as a rule of law, deciding instead to let the litigants and trial judge choose one of the methods considered acceptable. *See, e.g.*, Shaw v. United States, 741 F.2d 1202 (9th Cir. 1984); Alma v. Manufacturers Hanover Trust Co., 684 F.2d 622 (9th Cir. 1982). The choice of methods should be left to the district judge because he is in the best position to decide how to compute a fair award given the evidence presented. *Alma*, 684 F.2d at 626-27. *But see* Steckler v. United States, 549 F.2d 1372 (10th Cir. 1977). The Tenth Circuit stated that in its opinion it was best to inflate the lost earnings stream by the probable wage inflation and then discount it by the market interest rate. *Id.* at 1378. However, the court did not specifically require this method to be used in all instances. *Id.* Moreover, the *Steckler* decision preceded the Supreme Court's holding in *Pfeifer*, which acknowledged that at least three different approaches can be used to consider inflation in present value calculations.

108. 608 F.2d 796 (8th Cir. 1979).

109. *Id.* at 802. For a discussion of the present value discount requirement, see *supra* notes 6-25 and accompanying text.

110. 521 F.2d 63 (9th Cir. 1975).

111. *Id.* at 75. The plaintiff in *English* was sueing on a wrongful death claim under the Federal Tort Claims Act (FTCA), 28 U.S.C. § 2674 (1976). Under the FTCA, the court must apply "the law of the place where the act or omission occurred." 28 U.S.C. § 1346(b) (1976). Thus, the Ninth Circuit was required to apply California law because the injury occurred in California. *English*, 521 F.2d at 65.

112. *English*, 521 F.2d at 75 (emphasis added). *See* Hollinger v. United States, 651 F.2d 636 (9th Cir. 1981). The court in *Hollinger* was presented with a FTCA action that required it to apply Alaska law. Although the amount of damages to be awarded under the FTCA is governed by the law of the place of the wrongful act, 28 U.S.C. § 1346(b) (1976), the FTCA only permits compensatory damages. 28 U.S.C. § 2674 (1976). Even if the applicable state law "provides for punitive damages, or permits application of standards which result in a plaintiff receiving more than compensatory damages, then only the compensatory damages may be awarded." *Hollinger*, 651 F.2d at 642 (citing *English*, 521 F.2d at 70). In *Hollinger*, the Ninth Circuit held that the Alaska total offset method should be followed only "[i]f the district judge is unable to arrive at reliable estimates of future inflation or interest rates, or if the 'offset' figure is not punitive or does not impose excessive compen-

each rate was established at trial by independent and adequate proof, the trial court could, by comparing them, determine they were roughly equal and therefore offset each other.[113] Adopting the Ninth Circuit's rationale, the Tenth Circuit also rejected the total offset approach as a rule of law.[114] The court felt a more accurate and just result could be obtained by directly addressing inflation and the appropriate discount rate, "based on sound and substantial economic evidence."[115]

The Second Circuit also refused to require a legal presumption that inflation and interest rates are equal.[116] The court stated that absent historical evidence justifying a different rate,[117] the lowest discount rate it was willing to approve was 2%.[118]

In 1982, the Fifth Circuit resoundingly rejected adopting a total offset approach.[119] The court concluded that such an approach was as inflexible and unfair as the traditional approach.[120] It unfairly penalizes defendants

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satory damages . . . ." *Id.* Thus, if there is competent expert testimony yielding reliable figures, the judge shoud inflate the future damages and then reduce them to present value. *Id.* Comparing this "inflation-reduction" figure to the Alaska offset figure, he should determine whether the offset award is punitive or excessively compensatory. *Id.*

113. Alma v. Manufacturers Hanover Trust Co., 684 F.2d 622, 626-27 n.2 (9th Cir. 1982); Sauers v. Alaska Barge, 600 F.2d 238, 246 n.14 (9th Cir. 1979). If the inflation and discount rates are equal, their compounding effects cancel out. If this is the case, present value can be computed by multiplying the base earning figure times the individual's work life expectancy (WLE). S. SPEISER, RECOVERY FOR WRONGFUL DEATH §§ 8-9, at 721 (2d ed. 1975). Thus, the same award is derived by inflating the earnings stream and then discounting each year to present value, by discounting each year by a real interest rate of zero ($1/(1+0)^n$ will always equal one), or by multiplying the base salary by the WLE.

114. Steckler v. United States, 549 F.2d 1372, 1377-78 (10th Cir. 1977).

115. *Id.* Although noting that the total offset method might give a result similar to the Ninth Circuit's inflation-reduction method, the Tenth Circuit still felt the latter was conceptually preferable. *Id.*

116. Doca v. Marina Mercante Nicaraguense, S.A., 634 F.2d 30, 39 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981). However, the Second Circuit noted that the total offset approach is commonly used. *Id.*

117. *See, e.g.*, O'Rourke v. Eastern Air Lines, 730 F.2d 842 (2d Cir. 1984). Applying New York law in a diversity case, the Second Circuit upheld the district court's use of a factually based total offset approach. Plaintiff's expert testified that in his opinion, future interest and inflation rates would be equal and cancel each other out. *Id.* at 857. Because the defendant did not introduce evidence of another method or discount rate, the court's adoption of the total offset method of determining the award's present value was not clearly erroneous given the evidence presented. *Id.* at 858. Although both litigants assumed *Doca* governed the issue of discounting, the court noted that New York law governed, even though it was relatively undeveloped. *Id.* at 846-47, 857 n.24 (citing Klaxon Co. v. Stentor Elec. Mfg. Co., 313 U.S. 487 (1941)). The court felt New York law would allow a total offset calculation. *Id.* at 857 n.24.

118. *Doca*, 634 F.2d at 40.

119. Culver v. Slater Boat Co. (*Culver I*), 688 F.2d 280, 307 (5th Cir. 1982), *overruled*, *Culver II*, 722 F.2d 114 (5th Cir. 1983) (en banc).

120. *Id.* at 299, 307.

both because interest rates are generally higher than the inflation rate,[121] and because it does not allow the defendant to show that the plaintiff's wage increases would be less than inflation.[122] The court felt it was equally unfair to create a margin of error in either party's favor.[123] Furthermore, because determining inflation and discount rates are economic rather than legal problems, the court felt it was presumptuous for judges to make the economic decision that inflation will offset future interest earnings.[124] Economic facts should be proved just as physical, medical, or scientific facts are.[125] Thus, the Fifth Circuit concluded that, like the traditional approach, the total offset approach is clearly inferior and economically less sound than the below-market, real interest rate approach.[126] The court refused to require the use of any single approach and merely required that both parties be treated fairly.[127] After the Supreme Court's decision in *Pfeifer*, however, the Fifth Circuit withdrew its decision not to establish a single approach for considering future economic conditions.[128] It held that, unless the parties stipulate to use a particular method, the trier of fact *must* use the below-market discount rate approach.[129]

Unlike its sister circuits, the Third Circuit, in *Pfeifer v. Jones & Laughlin Steel Corp.*,[130] adopted the total offset approach as a federal rule of law.[131] The Third Circuit held "the discount factor is presumed equal to and offset by the impact of inflation on the future economic value of the award."[132] Thus, the court found it unnecessary to discount lump

121. *Id.* at 299.

122. *Id.* at 299, 305. Although the court does not mention it, logically, the total offset approach was also penalizing the plaintiff who was not allowed to show that his real wage growth would have exceeded the inflation rate.

123. *Id.* at 300 n.29.

124. *Id.* at 286, 299 n.26.

125. *Id.* at 299 n.26

126. *Id.* at 302.

127. *Id.* at 307. It summarized two approaches: the below-market, real interest rate approach and the inflate-discount or inflation-reduction approach. *Id.* at 308-10.

128. Culver v. Slater Boat Co. (*Culver II*), 722 F.2d 114, 117 (5th Cir. 1983) (en banc).

129. *Id.*

130. 678 F.2d 453 (3d Cir. 1982), *vacated*, 462 U.S. 523 (1983).

131. *Id.* at 457, 461. Recognizing that "an honest and accurate calculation must consider the stark reality of inflationary conditions," the Third Circuit adopted the total offset approach as the best means of doing so. *Id.* at 461. This approach satisfies the present value reduction requirement without requiring the trier of fact to speculate about future inflation rates. *Id.* In addition, it promotes judicial economy by avoiding complicated, time consuming economic testimony and renders more predictable awards, thereby, promoting settlement opportunities. *Id.*

132. *Id.* at 461. The Third Circuit expressly embraced the rule previously adopted by the Pennsylvania Supreme Court in Kaczkowski v. Bolubasz, 491 Pa. 561, 421 A.2d 1027 (1980). *Pfeifer*, 678 F.2d at 460. *See supra* notes 98-106 and accompanying text.

sum awards to their theoretical present value.[133]

4. Total Offset and the Supreme Court

The United States Supreme Court overturned the Third Circuit's decision in *Pfeifer* and refused to establish a single exclusive method for calculating lost earnings in an inflationary economy.[134] Although noting that a total offset approach was simple and might even be economically precise, the Court concluded that the Third Circuit had been wrong to impose its use on unwilling litigants.[135] Commentators do not agree on how average interest rates compare to the average wage growth rates.[136] While some argue the rates are equal,[137] others maintain that average wage rates exceed interest rates by 1.0% to 1.6%.[138] The Court was also unable to determine from the data presented whether national wage growth figures fairly represent wage growth patterns within specific industries.[139] The Court concluded that Congress was far more capable than the courts

133. *Pfeifer*, 678 F.2d at 461.

134. Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 550-51 (1983).

135. *Id.* at 549-50. The defendant in *Pfeifer* insisted the award must be reduced to present value, and the plaintiff attempted to present evidence of future cost of living wage increases. *Id.* at 551.

136. *Id.* at 549-50 & 550 n.31.

137. *Id.* at 549-50 (citing Carlson, *supra* note 6) (price inflation and societal factors—mainly productivity increases—can be used to offset the discount rate); *id.* at 550 n.31 (citing Comment, *supra* note 26, at 1023 & n.87) (government projections of average productivity growth equals real interest rates and, therefore, total offset is accurate).

138. *Pfeifer*, 462 U.S. at 550 n.31. A substantial body of literature suggests that the Carlson rule might even undercompensate some plaintiffs. *Id.* (citing S. SPEISER, RECOVERY FOR WRONGFUL DEATH, ECONOMIC HANDBOOK 36-37 (1970) ("average interest rate 1% below average rate of wage growth"); Coyne, *supra* note 33, at 26 ("noting that Carlson's own data suggest that rate of wage growth exceeds interest rate by over 1.6%, and recommending a more individualized approach"); Formuzis & O'Donnell, *supra* note 19, at 299 ("interest rate 1.4% below rate of wage growth"); Franz, *Simplifying Future Lost Earnings*, 13 TRIAL 34 (1977) ("rate of wage growth exceeds interest rate by over 1% on average"); Note, *supra* note 20, at 342-45). *See* Formuzis & Pickersgill, *supra* note 16, at 27 (citing six studies finding that average wage growth, excluding individual productivity factors, exceeds average interest rates by 0.8% to 1.6% and showing that average real productivity wage growth rates exceed average real interest rates by 1.0%). *But see* Corboy, *The Impact of Economic Theory on the Determination of Damages in a Wrongful Death Case: Income Taxes and Inflation Affect the Estimation of Future Loss of Earnings*, 28 TRIAL LAW. GUIDE 377, 401 (1985). In 1983, the Wyatt Company, a prominent national actuarial firm, surveyed 727 large pension plans and found the average wage growth rate used was 1.3% less that the average discount rate. *Id.* Similarly, a 1979 survey conducted by Moody's Financial Services, a prominent national investment analysis firm, showed large United States corporations used an average wage growth rate that was 1.3% less than the average discount rate in pension planning. *Id.* United States Government insurance studies conducted in 1983 and 1984 used an interest rate-wage growth rate differential that declined from the current level to 1.0% and then stabilized below the 1.0% level. *Id.* Mr. Corboy concludes that the average annual wage growth rate is 0.0%-1.0% *less than* the average interest rate. *Id.*

139. *Pfeifer*, 462 U.S. at 551. Arguably one would assume a high technology industry would have greater growth potential than the failing steel industry, for example.

of performing the necessary, in-depth economic analysis necessary to formulate a mandatory general rule.[140] The Court noted that obviously Congress could then require the courts to use a total offset approach if it chose to do so.[141] Moreover, the Court expressly authorized parties to stipulate to using a total offset approach, thereby reducing litigation costs and allowing fact finders to avoid considering inflation, societal productivity trends, and present value calculations.[142]

In its true form, the total offset approach is applied as a rule of law. Courts using this approach require that inflation (or inflation plus other elements commonly used to estimate the lost earnings) be presumed approximately equal to the discount rate, thereby eliminating the need to discount to present value.[143] The offset or washout occurs automatically and is legally mandated, distinguishing this method from instances where litigants *prove* that the elements net to zero.[144] The legally required total offset also differs from situations in which the parties stipulate to offset various factors[145] or leave the fact finder unable to determine the relevant factors by failing to present evidence regarding them.[146] When total offset results because of factual proof, stipulation, or failure to present evidence, it is, in all practicality, equivalent to inflating by the same percentage later used as the discount factor, or discounting by a below-market interest rate of zero. The Supreme Court rejected only the legally mandated use of the total offset approach in federal cases where one of the litigants seeks to use another method.[147]

B. The Market Interest Rate Approaches

Unlike the mandatory total offset approach, various market interest rate methods account for inflation by increasing the lost earnings stream

140. *Id.*
141. *Id.* at 550.
142. *Id.* at 550 & n.32.
143. *See supra* notes 84-106 and accompanying text, 130-34 and accompanying text.
144. *See, e.g.*, Alma v. Manufacturers Hanover Trust Co., 684 F.2d 622, 626 n.2 (9th Cir. 1982) (the legally mandated total offset approach is based on the *assumption* that the rates are roughly equal; whereas, a factual offset approach requires independent, adequate proof of each factor so the two can be compared); Sauers v. Alaska Barge, 600 F.2d 238, 246 n.14 (9th Cir. 1979) (same); Schnebly v. Baker, 217 N.W.2d 708, 727 (Iowa 1974) (the court made no adjustment because expert testimony showed that the inflation rate and the discount rate offset each other); Conklin, *supra* note 16, at 254-55 (when courts allow litigants to present expert testimony that the future inflation rate and market interest rate offset each other, a full evidentiary market interest rate approach is being used even though it may seem that a total offset approach was used).
145. *Pfeifer*, 462 U.S. at 550.
146. *Alma*, 684 F.2d at 626. Where neither party provides competent evidence of the inflation or discount rate, the court must award a lump sum that has not been adjusted for either factor. *Id.*
147. *Pfeifer*, 462 U.S. at 550-51.

by an anticipated inflation factor and then discounting each annual estimate by the market interest rate. The impact of inflation, like the appropriate discount rate, is an evidentiary issue. However, there is little consensus concerning what evidence should be admitted and whether fact finders should be allowed to rely on their common understanding of inflation.

1. The Full Evidentiary Approach

Circuits using the full evidentiary approach[148] recognize that future inflation, discounting, and real wage growth affect lost earnings; however, triers of fact are not permitted to consider these economic factors unless at least one of the litigants presents competent evidence establishing their appropriate rate or impact.[149] Triers of fact are not allowed to consider economic influences based on their common understanding because, like any other evidentiary issue, economic facts must be proven at trial.[150]

This approach was first discussed in *United States v. English*,[151] a Federal Tort Claims Act (FTCA)[152] wrongful death case applying California law.[153] The Ninth Circuit found that policy concerns, as well as California law, required the trier of fact to consider inflation.[154] Ignoring inflation when inflation rates are high "is to ignore economic reality" and is tantamount to "predicting it will not occur, or that its effects will be *de minimis*."[155] Although predicting future inflation requires some speculation, other estimates made in calculating lost future earnings also require speculation.[156] Thus, the court held that inflation must be considered.[157]

First, the lower court should estimate future income and expenses, taking into consideration the impact of inflation;[158] then it should discount the net future earnings to their present value.[159] The Ninth Circuit ad-

148. The full evidentiary market interest rate approach is also referred to as the inflate-discount, the inflation-reduction, or the independent incorporation approach.

149. *See infra* notes 151-63 and accompanying text.

150. *Id.*

151. 521 F.2d 63 (9th Cir. 1975).

152. 28 U.S.C. §§ 1346, 2671 (1976).

153. *See supra* note 112.

154. *English*, 521 F.2d at 75.

155. *Id.*

156. *Id.*

157. *Id.* The court subsequently applied this holding to a federal cause of action in a Federal Employer's Liability Act (FELA), 45 U.S.C. §§ 51-60 (1939), case. Burlington N., Inc. v. Boxberger, 529 F.2d 284, 293 (9th Cir. 1975).

158. *English*, 521 F.2d at 75. The Ninth Circuit recognizes that inflation is implicitly taken into account when the court uses projected annual increases based upon the industry's past history. *Id.* at 71 n.5; Sauers v. Alaska Barge, 600 F.2d 238, 245 (9th Cir. 1979); *Boxberger*, 529 F.2d at 293.

159. *English*, 521 F.2d at 72, 75 (reversing the lost future earnings portion of the FTCA award

monished lower courts not to *assume* the discount and inflation rates were equal,[160] nor to consider inflation estimates unless they were supported by competent evidence.[161] The fact finder may consider inflation estimates *only* if they are based on "sound and substantial economic evidence" and "can be postulated with some reliability."[162] The court cannot arbitrarily fix inflation estimates.[163]

2. The Middle Ground Approach

Although they recognize that future inflation and real wage growth affect lost earnings awards, circuits using the middle ground approach strictly limit expert evidence on wage increases and allow fact finders to use their common understanding of inflation.[164] Unlike the Ninth and Tenth Circuits, circuits using the middle ground approach permit triers of fact to consider future inflation even though neither litigant presented competent evidence to establish its appropriate rate.[165] Conversely, they would not allow expert evidence that specifically forecasts future inflation rates or discusses inflation estimates in broad general terms.[166]

In *Bach v. Penn Central Transportation Co.*,[167] a Federal Employer's

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because the district court had not discounted the future earnings to their present value). *Accord* Alma v. Manufacturers Hanover Trust Co., 684 F.2d 622, 626 (9th Cir. 1982) (noting that inflationary adjustments and present value discounting are equally important and the fairest, most economically sound damage award takes both into account). *But see Sauers*, 600 F.2d at 245 & 246 n.14. (concluding that either the full evidentiary market interest rate approach or the below market discount rate approach was permissible under the *English* rule).

160. *English*, 521 F.2d at 75. See *supra* notes 112-15 and accompanying text and 143-47 and accompanying text for an explanation of the difference between *assuming* as a rule of law that the two rates are equal and *factually establishing* them to be equal. Factually established offsets are permitted in the Ninth Circuit, while legally presumed offsets are not. *English*, 521 F.2d at 75.

161. *English*, 521 F.2d at 75.

162. *Id.* at 75-76. The parties bear the burden of presenting evidence concerning the proper interest and inflation rates because, as with any other element of damages, both are evidentiary issues. *Id.* at 75; *Alma*, 684 F.2d at 626. *See also* Chesapeake & Ohio Ry. v. Kelly, 241 U.S. 485, 491 (1916) (stating that present value discounting is an evidentiary issue). The fact finder is not required to determine an appropriate rate unless he is presented with evidence upon which to base a determination. *Alma*, 684 F.2d at 626; *Sauers*, 600 F.2d at 246-47; *English*, 521 F.2d at 75-76.

163. *English*, 521 F.2d at 75. The Tenth Circuit endorsed the *English* court's rationale and procedure for considering inflation and present value discounting. Deweese v. United States, 576 F.2d 802, 808 (10th Cir. 1978); Steckler v. United States, 549 F.2d 1372, 1378 (10th Cir. 1977). The court felt the inflate-discount or inflation-reduction approach was preferable because it carefully considered both inflation and present value discounting and prevented arbitrary guesswork in estimating future inflationary trends by only allowing the fact finder to consider estimates "based on sound and substantial economic evidence." *Steckler*, 549 F.2d at 1377-78.

164. *See infra* notes 169-202 and accompanying text.

165. *Id.*

166. *Id.*

167. 502 F.2d 1117 (6th Cir. 1974).

Liability Act (FELA)[168] case, the Sixth Circuit recognized that changes in the purchasing power of money were likely to occur; however, the court did not believe economists were capable of forecasting inflationary trends over the next thirty years.[169] Consequently, the court held that predictions of the decedent's lost earnings through the year 2002 were too speculative to be admitted as evidence.[170] The court noted, however, that in some instances, limited use of experts would be appropriate to show that income increases or promotions would probably occur.[171] Furthermore, the court emphasized that the fact finder could still consider inflation and future income increases.[172] The court stated:

> Inflation is a fact of life within the common experience of all jurors. Admittedly, if the jury considers this issue without expert testimony, their calculations will be even more imprecise. . . . But if jurors should be prohibited from applying their common knowledge of inflation . . . , the party entitled to recovery could be grievously undercompensated. The court can always rectify an exorbitant verdict through its power of remittitur.[173]

Thus, though the expert testimony was properly excluded, the district court should not have instructed the jury to disregard future inflationary trends.[174]

In *Morvant v. Construction Aggregate Corp.*,[175] a case arising under the Jones Act[176] and general maritime law, the Sixth Circuit emphasized that *Bach* did not bar all expert testimony; indeed, courts cannot preclude fact finders from considering inflation, individual productivity, or other factors affecting future wages.[177] *Bach's* real purpose was to prevent "a projection of statistical data so attenuated as to be *reductio ad absurdum*, thus allowing damages to be ballooned beyond all rational experience."[178]

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168. 45 U.S.C. §§ 51-60 (1939).
169. *Bach*, 502 F.2d at 1122.
170. *Id.* Based on his knowledge of the railroad industry and his forecast of future inflation, the plaintiff's expert sought to estimate the decedent's lost earnings through the year 2002. *Id.*
171. *Id.*
172. *Id.*
173. *Id.*
174. *Id.*
175. 570 F.2d 626 (6th Cir. 1978).
176. 46 U.S.C. § 688 (1920) (giving seamen the remedies available to railroad employees under the Federal Employer's Liability Act (FELA), 45 U.S.C. §§ 51-60 (1939). The Jones Act enables an injured seaman or the personal representative of a deceased seaman to recover damages for the seaman's injury or death where such injury or death occurred in the course of the seaman's employment because of the negligence of the ship's owner, master, or crew members).
177. *Morvant*, 570 F.2d at 632.
178. *Id.* at 632 n.5.

The court held that the trial court erred in depriving the jury of expert evidence concerning the decedent's increased earning capacity.[179]

The Eighth Circuit has also adopted the middle ground approach authorized in *Bach*. In *Riha v. Jasper Blackburn Corp.*,[180] a diversity case arising under Nebraska law,[181] the court refused to allow direct testimony projecting inflationary increases over the plaintiff's life or work expectancy.[182] The court concluded that expert testimony concerning the effect of future inflation on future losses was inadmissible.[183] The court stated that such testimony is speculative and uncertain and forces triers of fact to consider remote, collateral issues, thereby creating unmanageable trials.[184] For example, predictions of future inflation may necessitate discussions of the expert's views on world finance or specific economic theories.[185] Such testimony often wastes time and confuses the issues.[186] Moreover, expert testimony estimating a specific rate of inflation may mislead rather than assist the trier of fact because it appears more precise than current forecasting techniques are capable of predicting.[187] Finally, applying a specific rate of inflation may result in unduly high estimates of future earnings.[188]

In *Johnson v. Serra*,[189] a diversity wrongful death action,[190] the court again followed the middle ground position.[191] Noting that "economists have fared only slightly better than fortune tellers and soothsayers in foretelling the future,"[192] the court refused to admit an expert's projections of

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179. *Id.* at 632-33.

180. 516 F.2d 840 (8th Cir. 1975).

181. Nebraska permitted jurors to consider inflation as a general factor but did not allow courts to give instructions on future inflation. *Id.* at 843.

182. *Id.*

183. *Id.* at 845.

184. *Id.* at 843-44 n.4. *See also* Taenzler v. Burlington N., Inc., 608 F.2d 796, 801 (8th Cir. 1979). The admissibility of expert testimony does not depend on the relative certainty of the matter being testified about. *Id.* at 798 n.3. Rather, it depends on whether the expert testimony will assist the trier of fact in understanding the evidence or deciding a fact in issue. *Id.* (citing FED. R. EVID. 702). Moreover, trial courts are given wide discretion in deciding whether to admit expert testimony; a court's decision to admit expert testimony may not be overturned unless manifestly erroneous. *Id.* (citing Salem v. United States Lines Co., 370 U.S. 31 (1962)).

185. *Taenzler*, 608 F.2d at 801.

186. *Id.*

187. *Id.*

188. *Id.*

189. 521 F.2d 1289 (8th Cir. 1975).

190. Minnesota law allowed juries to consider inflation. However, the court did not find any Minnesota case allowing an expert's long-range estimate of future inflation to be used as evidence. *Id.* at 1295.

191. *Id.* at 1296.

192. *Id.* at 1294.

future inflationary trends.[193] Thus, the Eighth Circuit refuses to admit expert testimony *directly* predicting future inflation rates.

In *Taenzler v. Burlington Northern, Inc.*,[194] however, the Eighth Circuit permitted expert testimony on probable railroad wage increases because it was properly limited to a single class of employees.[195] The court agreed that the probability of future pay increases was relevant in determining lost earnings awards.[196] Reasoning that the Eighth Circuit has never required the trier of fact to ignore future inflation when determining lost future earnings awards under federal law,[197] the court stated that expert testimony that *indirectly* considers future inflation is admissible.[198] Expert testimony limited to future wage increases of a particular group of employees avoids the confusion and distortion inherent in testimony that is either overly specific, such as a prediction of a particular future earnings figure, or excessively general, such as an estimate of the overall national inflation rate.[199] Since expert testimony on potential future wage increases is appropriately limited to the issue at hand, it avoids misapplication and assists the trier of fact without wasting time on peripheral issues.[200] Thus, expert testimony on future wage increases may be admitted even though it indirectly considers future inflation.[201] However, forecasts of future inflation rates or specific earnings figures are not permissible.[202]

C. *The Below Market Discount Rate or Real Interest Rate Approach*[203]

In *Jones & Laughlin Steel Corp. v. Pfeifer*,[204] the Supreme Court noted that other common law countries refuse to explicitly consider infla-

193. *Id.* at 1296-97. The expert attempted to forecast future earnings by factoring in a compound inflation rate. *Id.* at 1294 n.8.

194. 608 F.2d 796 (8th Cir. 1979) (a personal injury claim arising under the Federal Employer's Liability Act (FELA), 45 U.S.C. §§ 51-60 (1939)).

195. *Taenzler*, 608 F.2d at 801-02.

196. *Id.* at 799-800 (citing Grunenthal v. Long Island R.R., 393 U.S. 156, 160 (1968), *rev'g* 388 F.2d 480 (2d Cir.), *rev'g* 299 F. Supp. 813 (S.D.N.Y. 1967)). In *Grunenthal*, the Supreme Court upheld the district court's damage determination even though it was based on probable future wage increases. *Grunenthal* 393 U.S. at 160.

197. *Taenzler*, 608 F.2d at 800. Indeed, the Eighth Circuit has indicated it may be reversible error for the trial court to instruct the jury *not* to consider future inflation. *Id.*

198. *Id.*

199. *Id.* at 801.

200. *Id.*

201. *Id.* at 800.

202. *Id.* at 801.

203. The below market interest rate approach is also referred to as the real interest rate, net discount rate, or partial offset approach.

204. 462 U.S. 523 (1983).

tion when estimating the lost earnings stream.[205] Rather, other common law countries estimate the stream in current dollars and then discount the annual earnings with a below market discount rate.[206] For example, England applies a 4.75% discount factor; Canada uses a 7.0% factor; and Australia has adopted a 2.0% rate on the assumption that this represents an accurate estimate of long-term real interest rates.[207]

In *Feldman v. Allegheny Airlines*,[208] a diversity wrongful death action governed by Connecticut law,[209] the Second Circuit allowed the district court to account for the effects of inflation by using an inflation-adjusted discount rate to reduce the inflation-free annual earnings estimates to present value.[210] Using annual inflation rates listed in the Consumer Price Index, the plaintiff's expert calculated the average inflation rate over an eighteen year period.[211] Similarly, he calculated the average rates of return on mutual savings bank investments.[212] He concluded that the appropriate inflation-adjusted discount rate was 1.5% because on the average, interest rates exceeded inflation rates by 1.27% (rounded to 1.5% by the court).[213] The district court corroborated this discount rate by calculating the real yields (interest rates with inflation factored out) on federal government securities.[214] Finally, the district court used this inflation-adjusted discount rate to discount the annual wage estimates, which had been calculated using current wages, adjusted to reflect productivity and promotion increases, but not inflationary increases.[215]

In *Doca v. Marina Mercante Nicaraguense, S.A.*,[216] a case arising under the Longshoremen's and Harbor Workers' Compensation Act (LHWCA),[217] the Second Circuit held as a matter of federal law that inflation is a dominant factor on the current economic scene and should be considered in calculating the present value of lost future earnings.[218] The court concluded that because, as the data in *Feldman* reveal, there is

205. *Id.* at 541.
206. *Id.*
207. *Id.*
208. 524 F.2d 384 (2d Cir. 1975).
209. *Id.* at 386. The court noted that Connecticut had not yet decided how inflation should be accounted for. *Id.* at 387.
210. *Id.* at 388.
211. *Id.* at 387.
212. *Id.*
213. *Id.*
214. *Id.*
215. Feldman v. Allegheny Airlines, 382 F. Supp. 1271, 1283-88 (D.Conn. 1974), *rev'd on other grounds*, 524 F.2d 384 (2d Cir. 1975).
216. 634 F.2d 30 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981).
217. 33 U.S.C. §§ 901-950 (1976).
218. *Doca*, 634 F.2d at 36-37.

a fairly constant relationship between interest and inflation rates, it is more reasonable to make a prediction about the relationship between them than to predict interest rates alone.[219]

Based on the inductive inference that the future will resemble the past,[220] the Second Circuit determined it is possible to consider inflation without specifically predicting its future level.[221] All that is necessary is an assumption that future inflation and interest rates will maintain the same relationship they have in the past.[222] Since this relationship is fairly constant at about 2.0% in periods of low, stable inflation, a "2% discount rate would normally be fair to both sides."[223] Moreover, the 2.0% rate need not be adjusted for "unusually high inflation" because it is unlikely the victim's wages would have kept up with inflation.[224] Thus, even though interest rates tend to lag behind inflation rates in periods of high inflation, the plaintiff will be fully compensated for his lost wages.[225]

Litigants are free to agree on a different discount rate or offer evidence of a different rate or a different method of accounting for inflation.[226] While recommending the 2.0% discount rate and requiring district courts to use it if the parties do not present evidence on either inflation or present value discounting, the Second Circuit refused to require parties to use any particular method to account for inflation when calculating lost future wages.[227]

Unlike the Second Circuit, the Fifth and Eleventh Circuits require parties to use the below market discount rate approach.[228] In *Culver v. Slater*

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219. *Id.* at 37.

220. *Id.*

221. *Id.* at 38.

222. *Id.*

223. *Id.* at 39. The court also noted that the 2.0% discount rate falls "within the narrow range bracketed by many economists as representing the true yield of money." *Id.* at 39 & n.10.

224. *Id.* at 39-40.

225. *Id.* at 40.

226. *Id.* at 39-40.

227. *Id.* However, the Second Circuit cautioned that when an inflation adjusted discount rate is used, it must be applied to a stream of earnings estimated without regard to inflation. *Id.* at 40. In Crane v. Consolidated Rail Corp., 731 F.2d 1042 (2d Cir. 1984), a FELA case, the Second Circuit stated that the below market discount rate should be used only if the lost future earnings were not inflated when estimated. *Id.* at 1051.

228. *See, e.g.*, Deakle v. Graham & Sons, 756 F.2d 821, 830 n.7 (11th Cir. 1985) (*Culver II* is binding precedent in the Eleventh Circuit); Nesmith v. Texaco, Inc., 727 F.2d 497, 498 (5th Cir. 1984) (*Culver II* requires parties to use the below market discount approach; this approach does not allow the fact finder to consider inflationary factors when calculating plaintiff's lost stream of future earnings); Culver v. Slater Boat Co. *(Culver II)*, 722 F.2d 114, 117 (5th Cir. 1983) (en banc). For a description of how to determine an appropriate below market discount rate, see Jamail, *The Damage Award In A Maritime Personal Injury Case*, 45 LA. L. REV. 849, 856-58 (1985). See generally Mandel, *Pfeifer and Culver II: Calculations, Issues And Tactics*, 47 TEX. B.J. 1212 (1984), for a

Boat Co. (Culver II),[229] a wrongful death case brought under the Jones Act[230] and the Death on the High Seas Act, (DOHSA)[231] the Fifth Circuit held that the fact finder *must* use the below market discount rate approach, unless the parties stipulate otherwise.[232] Expert testimony and jury instructions must be based on this method; juries, however, may be required either to return a general verdict or to answer special interrogatories concerning damage calculations.[233]

V. A Critique of the Current Approaches to Inflation and Their Underlying Policy Considerations

In calculating damages, courts are concerned with three policy considerations: accuracy, efficiency, and predictability.[234] Courts attempt to balance these considerations and adopt the method of accounting for inflation that is judicially efficient, yet produces reasonably accurate and predictable awards. However, because they value these concerns differently, courts adopt diverse approaches emphasizing different policy concerns.[235]

A. The Total Offset Approach

The total offset approach is judicially efficient and predictable because it eliminates the need to forecast future inflation and discount rates. This approach, however, results in unfair and inaccurate awards because it does not adequately consider case-specific elements that may affect lost earnings.[236] Wage increases within any given industry may differ from the average national wage growth patterns used in determining that an offset should occur.[237] Thus, courts can calculate fairer, more accurate awards

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detailed discussion of how to use the below market interest rate approach.

229. 722 F.2d 114 (5th Cir. 1983) (en banc).

230. 46 U.S.C. § 688 (1920); *see supra* note 176.

231. 46 U.S.C. § 761 (1920) (providing for a pecuniary recovery for death caused by wrongful act, neglect or default occurring on the high seas).

232. *Culver II*, 722 F.2d at 117. Following the Supreme Court's ruling in *Pfeifer*, the Fifth Circuit reheard *Culver I* en banc. With nine judges dissenting, the court withdrew the opinion in *Culver I*, except as it overruled *Penrod*, and substituted in its place the court's opinion in *Culver II*. Thirteen judges rejected *Culver I's* case-by-case choice of methods approach and held that fact finders *must* use a below market discount rate method, unless the parties stipulate otherwise. *Id.* at 116-17.

233. *Id.* at 117.

234. Freeport Sulphur Co. v. S/S Hermosa, 526 F.2d 300, 308-12 (5th Cir. 1976) (Wisdom, J., concurring); Comment, *supra* note 16, at 108. *See* Note, *supra* note 20, at 336-37. (courts attempt to balance considerations of equity, efficiency, and certainty in determining damages).

235. Comment, *supra* note 16, at 108.

236. *See* Coyne, *supra* note 33, at 27-28.

237. *Pfeifer*, 462 U.S. at 551; Coyne, *supra* note 33, at 27-28; Henderson, *supra* note 2, at 312.

using detailed information about wage trends in the plaintiff's specific occupation rather than average estimates applied through a general formula.[238] Moreover, economists do not agree on whether the average discount rate fully offsets average wage growth, which is comprised of inflation plus societal productivity factors,[239] or even whether calculating average percentage changes is an appropriate way to estimate the trend of future changes.[240] Thus, the Supreme Court correctly decided that courts should not impose the total offset approach as a rule of law on unwilling litigants in federal claims.

B. The Market Interest Rate Approaches

1. The Full Evidentaiary Approach

The full evidentiary market interest rate approach emphasizes accuracy over efficiency and predictability. Courts relying on competent expert testimony to establish inflationary trends and appropriate discount rates argue that economic predictions are no more speculative than other predictions courts make about future income and expenses.[241] Since future inflation is more probable than not, courts should attempt to predict it as best they can, rather than ignore it.[242] Although an expert's prediction of future inflation may be imprecise, it is surely more reliable than unguided speculation by the fact finders.[243]

In exchange for a presumed increase in accuracy, the evidentiary approach sacrifices some efficiency. It increases the complexity of cases and makes them more time consuming and costly. Expert economic testimony may confuse, rather than aid the fact finders;[244] it may force them to consider remote, collateral issues, unnecessarily increasing the length of trials.[245] Credibility problems may arise either because of the public's ten-

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238. *See, e.g.*, Taenzler v. Burlington N., Inc., 608 F.2d 796, 800 (8th Cir. 1979); Bach v. Penn Cent. Transp. Co., 502 F.2d 1117, 1122 (6th Cir. 1974); Coyne, *supra* note 33, at 27-28; Hadley & Rapp, *supra* note 9, at 29-31; Note, *supra* note 20, at 337.

239. *See supra* notes 136-38 and accompanying text.

240. Maher, *Estimating Future Earnings Loss: Misinterpretation and Faulty Logic*, 15 TRIAL 39, 39-40 (1979). One cannot accurately estimate future changes from an average of past year-to-year changes because averages do not account for the direction in which changes are moving. *Id.* Instead, one should estimate future earnings by fitting a trend line to the observed data. *Id.*

241. United States v. English, 521 F.2d 63, 75 (9th Cir. 1975).

242. *Id.*

243. *See id.* at 75-76.

244. *See supra* notes 178-87 and accompanying text; Note, *supra* note 20, at 337 & n.113 (citing P. SAMUELSON, ECONOMICS 8-9 (10th ed. 1976); Fisher, *Use of an Economist to Prove Future Economic Loss*, 18 S. TEX. L.J. 403, 410 (1977)).

245. *See supra* notes 178-87 and accompanying text.

dency to distrust economic forecasts,[246] or because inflation-adjusted wages, forecast far into the future, often appear so large triers of fact doubt their veracity.[247] By contrast, some courts contend that fact finders may accept detailed economic calculations too readily without adequately scrutinizing them.[248]

Not only does the full evidentiary approach fail to promote judicial efficiency and economy,[249] it also fosters unpredictable awards. Because plaintiffs will have varying degrees of success proving inflationary trends and their effects, fact finders will award divergent damages for similar injuries.

Moreover, if economists cannot predict future inflation rates,[250] the loss of efficiency and predictability cannot be justified by the putative increase in precision. Thus, in *Jones & Laughlin Steel Corp. v. Pfeifer*,[251] the Supreme Court properly cautioned that "specific forecasts of future price inflation remain too unreliable to be useful in many cases" and their use will normally be a costly, unproductive waste of a longshoreman's resources.[252] Because "[t]he average accident trial should not be converted into a graduate seminar on economic forecasting,"[253] plaintiffs and trial courts should try to avoid using this approach.[254]

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246. Note, *supra* note 20, at 337 & n.112 (citing O. MORGENSTORN, ON THE ACCURACY OF ECONOMIC OBSERVATIONS 9 (1963)).

247. Mandel, *supra* note 228, at 216.

248. Note, *supra* note 20, at 377 n.112 (citing Taenzler v. Burlington N., Inc., 608 F.2d 796, 800 (8th Cir. 1979)).

249. *But see* Culver v. Slater Boat Co. *(Culver I)*, 688 F.2d 280, 298 (5th Cir. 1982), *overruled*, *Culver II*, 722 F.2d 114 (5th Cir. 1983) (en banc). In *Culver I*, the Fifth Circuit disagreed that the evidentiary approach frustrates judicial economy. *Id.* The court argued that the evidentiary approach is simpler and more accurate than the below-market interest rate approach because it does not require the "difficult task of breaking down the data into the reasons for the increase, e.g., cost of living or merit increases." *Id.*

250. *See* Jones & Laughlin Steel Corp. v. Pfeifer, 462 U.S. 523, 548 (1983); *Culver I*, 688 F.2d at 320 (Johnson, J., dissenting) (citing an extensive listing of general literature indicating "the sorry tale of the repeated confusion, contradictions, and uncertainties of economic forecasts"); Formuzis & O'Donnell, *supra* note 19, at 299 ("[E]conomists widely agree that the actual rate of inflation over the next ten, twenty, or thirty years cannot be predicted by projecting the historical rate of inflation."); Formuzis & Pickersgill, *supra* note 16, at 26 (It is impossible to predict future inflation rates except for short periods of time already influenced by monetary policy. Inflation is primarily controlled by monetary policy, which, in turn, depends on unpredictable political factors).

251. 462 U.S. 523 (1983).

252. *Id.* at 548.

253. *Id.* (citing Doca v. Marina Mercante Nicaraguense, S.A., 634 F.2d 30, 39 (2d Cir. 1980), *cert. denied*, 451 U.S. 971 (1981)).

254. *Id.*

2. The Middle Ground Approach

The middle ground approach promotes judicial economy and efficiency by refusing to admit expert testimony concerning overall future inflation rates or specific future earnings estimates. By limiting admissible expert evidence to the probability of future wage increases or promotions, circuits using this approach appear to follow the Supreme Court's admonishment in *Pfeifer* to discourage plaintiffs and trial courts from relying on specific forecasts of price inflation.[255]

Paridoxically, however, having prohibited expert testimony, these courts then permit the trier of fact to consider inflation based on his admittedly less precise common experience. Thus, while this approach conserves judicial resources by avoiding complicated, time consuming economic testimony, it lacks predictability and accuracy because the trier of fact is allowed to speculate without the benefit of expert guidance. In addition, such speculation is contrary to the Supreme Court's requirement in *Pfeifer* that a litigant offer sufficient proof before the trier of fact is permitted to consider inflation in estimating the worker's lost future earnings.[256]

C. The Below Market Discount Rate or Real Interest Rate Approach

The below market discount rate approach avoids predictions, disputes, and speculation over future inflationary trends and interest rates because it does not require the parties to prove future inflation or discount rates at trial.[257] While the plaintiff still must prove that his annual wages would have kept up with inflation, and the defendant may try to prove they would have fallen below it, the litigants need not predict a specific future inflation rate. Because real interest rates are presumed to be relatively stable over time, the parties need only compare inflation rates with historical observations of interest rates on risk-free investments to determine the real rate of interest.[258] The average difference between interest and inflation rates is the below market real rate of interest used to discount the estimated earnings stream, which was calculated without adjusting for future inflation. Consequently, this approach promotes judicial efficiency by reducing trial time and litigation costs and complexities, while at the same time encouraging predictable damage awards.[259] Moreover, awards calculated under this approach are remarkably similar to ones derived un-

255. *Id.*
256. *Id.* at 536, 538.
257. *Doca*, 634 F.2d at 39.
258. *Id.*
259. Culver v. Slater Boat Co. *(Culver II)*, 722 F.2d 114, 121 (5th Cir. 1983) (en banc).

versed if it uses a rate between 1.0% and 3.0% and explains its choice.[264]

VI. CONCLUSION

The Supreme Court in *Jones & Laughlin Steel Corp. v. Pfeifer*[265] recognized that inflation is an economic reality and must be considered in determining an award for lost earnings. When trying federal cases, courts can no longer refuse to consider inflation because it is too "speculative." The Court, however, did not select an exclusive method for calculating lost future earnings. It merely rejected the traditional approach and held that the total offset approach could not be forced upon unwilling litigants as a rule of law.

Most circuits do not insist that fact finders use a particular method when dealing with inflation. Only the Fifth and Eleventh Circuits require the use of a single exclusive method. The other circuits, though stating various preferences, follow the Supreme Court's example in *Pfeifer* and allow the litigants and the trial court judge to choose the most appropriate discount rate, based on economic testimony and the particular circumstances of the case.

This case-by-case approach is time consuming and costly to litigants and places an unfair burden on trial courts. Trial courts are no more capable than the Supreme Court of performing complicated economic analysis. Reliable data indicating how well the various approaches predict future earnings is currently unavailable. Thus, rather than merely stating that the legislative branch is better equipped than the courts to analyze this problem, the Supreme Court should recommend that a study group comprised of lawyers, economists, and financial advisors systematically apply the various approaches to past data and ascertain which approaches produce reasonably accurate, efficient, and predictable results.[266] Balancing these often conflicting goals, the Supreme Court should then adopt the best method as a rebuttable presumption,[267] placing the burden of show-

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264. *Pfeifer*, 462 U.S. at 548-49. *See* Hadley & Rapp, *supra* note 9, at 31-32. Although noting that a uniform discount rate of 2.0% is consistent with prevailing economic conditions and would be simplier and less costly to administer, Professors Hadley and Rapp agree the Supreme Court was wise to set an interval of from 1.0% to 3.0%. *Id.* An interval provides the flexibility necessary to adjust the discount rate to account for variations in real income growth and other case specific phenomenon. *Id.*

265. 462 U.S. 523 (1983).

266. *See* Conklin, *supra* note 16, at 287. Mr. Conklin argues that we are choking our economy by awarding excessive damages, "premised on unsound and unreliable economic formulas." *Id.* He recommends that the Tort Insurance Practice Committee of the American Bar Association form a study group, composed of attorneys, money managers, and economists, to come to grips with the damage dilemma. *Id.*

267. Under the rules of evidence, a rebuttable presumption holds true unless contradictory evidence is introduced to overcome it. BLACK'S LAW DICTIONARY 1139 (5th ed. 1979). A rebuttable

ing that another approach should be used on the party seeking to use it. Under such a rule, a court would commit reversible error by using another method unless evidence in the record supported the substitute approach.[268] Moreover, applying an approach as a rebuttable presumption shifts the burden of proving that another method should be used to the party seeking to use it. Use of the selected approach in such manner would provide courts with both the guidance and flexibility necessary to calculate adequate lost future earnings awards.

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presumption "has the effect of shifting the burden of proof." Heiner v. Donnan, 285 U.S. 312, 329 (1932); BLACK'S LAW DICTIONARY 1139 (5th ed. 1979).

268. Comment, *supra* note 26, at 1024. (recommending that the total offset approach be adopted as a rebuttable presumption, rather than as a rule of law, because inflation, productivity, and interest rates may not continue to offset each other indefinitely). Such a rule would make it reversible error to use another approach unless evidence in the record supported its use. *Id.* Applying the total offset approach in such a manner would allow courts flexibility while assuring that they calculate damage awards analytically rather than intuitively. *Id.*

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Estimating Future Lost Earnings

Some Common Problems

Lawrence Hadley and John Rapp

The authors analyze the impact of using alternative data sources to estimate the present value of future lost earnings for two typical wrongful death cases. They discuss the types of data sources available and conclude that the resulting calculations are not sensitive to alternative data sources. In addition, they briefly discuss the great sensitivity of present-value estimates of future lost earnings to different discount rates.

Analyses of future lost earnings pose problems for economists. Among the most important are choice of a data source for projecting an earnings profile, integration of expected growth of real wages into the analysis, and choice of the appropriate discount rate for reducing the earnings profile to present value.

No formulas provide universal answers to these problems. Each case is unique. The only general rule is that good judgment is essential, which is part of the reason that economists are usually hired to do these analyses. There are, however, underlying principles that should guide them in these analyses. Some understanding of these principles is important for attorneys with cases involving future lost earnings.

The Appropriate Source of Income Data

Two major types of data are used in estimating future lost earnings: individual-specific data and public data. Individual-specific data are unique to an individual, while public data cover many individuals and are compiled by sampling techniques. Most individual-specific data come from individual tax records, while most public data come from government publications.

The choice between these two is not always obvious. Generally, individual-specific data are preferred when plaintiff has a long and stable employment history. Since earnings increase as people gain experience in an occupation, however, their income data may underestimate their future earnings potential if they have recently entered the labor force or if they have recently changed occupations. In these cases, public data are superior since they are based on average occupational earnings, which will more accurately estimate an individual's future earnings. Good judgment based on familiarity with the experience-earnings profiles of various occupations is the only basis for choice between the two sources.

Where public data are judged appropriate, the problem of choosing between alternative sources must be addressed. The Bureau of the Census publishes two commonly used sources. The *Current Population Reports* on consumer income (Series P-60, No. 142) includes an annual, *Money Income of Households, Families, and Persons in the United States.*[1] It reports data on average income disaggregated by various categories, including age, race, sex, education, occupation, marital status, family size, and geographic region. A second publication from the *Current Population Reports* (Series P-60, No. 139), *Lifetime Earnings Estimates for Men and Women in the United States: 1979,* gives detailed age-earnings profiles by level of education, sex, and labor-force status. These profiles reflect the impact of work experience on earnings over the life cycle by education and sex, but not by specific occupation.

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The Bureau of Labor Statistics (BLS) is the other major source of data on wages and income. Perhaps its most useful publication is *Occupational Outlook Handbook* (Bulletin 2205), which gives starting and average salaries as well as a general outlook on career prospects for a wide range of occupations.[2] BLS also publishes *Monthly Labor Review,* an important source of economy-wide data on labor markets and prices, and *Area Wage Surveys* (Bulletin 3025 for the 1984 series), which provides detailed wage rates for specific blue-collar and clerical occupations in a large number of U.S. metropolitan areas.

In addition to these regular publications, BLS publishes many occasional reports that analyze earnings in various occupations, regions, etc. These may appear in the *Monthly Labor Review* or as separate bulletins. To help locate relevant reports, the BLS makes available a semi-annual bibliography of its publications and a free monthly newsletter titled *Just Published.*

The criterion for choosing a data source must be the accuracy with which the data conform to the specifics of the individual's anticipated working career. In some cases, these specifics may be detailed (e.g., a full-time unionized tanker-trailer milk truck driver with three years of high school, living in Dayton, Ohio). In other cases, they may not be (e.g., a high school dropout with less than three years of high school, living in Dayton, Ohio, who has no significant work experience). Occasionally, there may be just one source of data relevant to an individual's expected career, but frequently there are two or more about equally applicable to that career.

The major point is that the valuation of future lost earnings is typically not highly sensitive to a data source. Where equally relevant sources of public data are available, the choice between them will usually make little difference in the estimate of pecuniary loss.

Two Typical Cases

To support this point, we analyzed two typical wrongful death cases using the hypothetical individuals mentioned above.

The first, Mr. Truck, was born on January 1, 1958, quit school at age 18, and served in the military for two years until the end of 1978. He married in 1979 and worked at various low-paying jobs through 1981. In January 1982, he landed a union position as a trainee driver of a tanker-trailer milk truck in Dayton, Ohio. He completed his training program in December and was ready to begin his own route when he was killed in a three-car accident on January 1, 1983, his 25th birthday. The accident was due to the negligent driving of Mr. Drunk. Mr. Truck is survived by his unemployed wife and one minor child.

At least two sources of data on the earnings of truck drivers are suitable for estimating Mr. Truck's lifetime earnings. The first is the *Area Wage Survey* series published by BLS. This source (Bulletin 3020-66) identifies the hourly wage for "heavy truck drivers" in Dayton, Ohio, for December 1983 as $9.89. Assuming a work year of 2,080 hours, annual earnings for Mr. Truck are estimated at $20,571.

The second, an occasional BLS report, is a 1979 study, *Union Wages and Benefits: Local Truckdrivers and Helpers* (Bulletin 2089). This source gives the September 1979 hourly wage for unionized "milk tanker-trailer truck drivers" in Cincinnati, Ohio, as $8.35. Using the "Employment Cost Index for Wages and Salaries by Occupation" (published quarterly in the *Monthly Labor Review*) to inflate this figure to 1983 prices, the estimated hourly wage is $10.23, which results in estimated annual earnings of $21,278.

Table 1 presents the results of a simple analysis of Mrs. Truck's pecuniary loss. At age 25, Mr. Truck had a work-life expectancy of 33.4 years. The third line of column 1 shows that the present value of Mrs. Truck's loss (using a net discount rate of 2 percent) estimated from the BLS study of union wages is $380,949 as of January 1, 1983, while the third line of column 2 shows her loss to be $368,291 when the same estimate is made with the *Area Wage Survey* datum. These present-value figures have been reduced by the normal 26 percent to allow for Mr. Truck's personal consumption, but the results are simplified in that they do not account for fringe benefits or for the value of the household services a husband normally performs. Neither of these simplifications impacts on the major point: the small

size of the difference between the two estimates. In relative terms, the difference is only 3.4 percent.

Which of these two sources is better? With respect to the particulars of time and geographic location, the *Area Wage Survey* is superior. But with respect to union status and type of truck driven, *Union Wages and Benefits* is more consistent with the particulars of this case. Neither is superior on all counts, and an economist might well present estimates of pecuniary loss using both sources as a basis for upper and lower boundaries of the loss. As long as an economist uses either or both of these sources for estimating the earnings base, however, the jury would have a reasonable approximation of future lost earnings.

these, however, presents data on the basis of type of truck, geographic region, or trade-union status.

Columns 3 and 4 of Table 1 show the same present-value analyses of Mrs. Truck's loss using these two sources, resulting in much larger differences between the estimates of loss. Considering all four estimates from Table 1, the difference between the high and low estimates is more than 15 percent as compared to the 3.4 percent difference between the first two sources.

This highlights the importance of having an economist with extensive knowledge of public-data sources and with good judgment estimate the value of future lost earnings. In this case, the last two sources clearly should not be used.

Table 1

Mrs. Truck's Pecuniary Loss

Net Discount Rate	(1) BLS Study of Union Wages of Truck Drivers	(2) Area Wage Survey	(3) Current Population Reports	(4) Rytina Study
0%	$525,907	$508,433	$478,724	$451,685
1%	$445,222	$430,428	$405,278	$382,387
2%	$380,949	$368,291	$346,771	$327,185
3%	$329,298	$318,357	$299,755	$282,824
4%	$287,427	$277,877	$261,640	$246,862

Two other sources present data on the earnings of truck drivers, but they are clearly inferior for Mr. Truck's case because they are less detailed and thus conform less accurately to the specifics of his career prospects. One is the previously mentioned *Current Population Reports: Money Income of Households, Families, and Persons in the United States,* which presents annual median income of full-time male workers in the occupation group "transportation and material moving." The other is a study by Nancy Rytina in the April 1982 issue of the *Monthly Labor Review.* It analyzes median weekly earnings of full-time male workers in various occupations, including truck driving. Neither of

Extensive detail as in the case of Mr. Truck, however, is not always available. Thus, more general sources must be used in some cases. This is illustrated by the second hypothetical case.

Mr. Facture, born on January 1, 1962, was also killed in the same accident. He was 21 on the day of his death and is survived by an unemployed wife and a minor child. He left high school in 1980 having completed less than three years toward a diploma. For two years he was employed in low-paying jobs at fast-food restaurants, but just before his death, he had obtained an unskilled job in a local factory. Obviously a more general source of data is called for since Mr. Facture's career prospects are not as well-defined as those of Mr. Truck.

Deciding on a source of income data to estimate Mr. Facture's future earnings must draw on one of the two facts relevant to his career prospects. The focus could be on his unskilled factory position, in which case the logical data are the hourly wage rates compiled by industry and published in the *Monthly Labor Review* (see, for example, the April 1984 issue, Table 14, page 69). This source shows the average annual hourly wage rate in manufacturing for 1983 as $8.84. Assuming a work year of 2,080 hours, this generates an estimate of $18,387 for Mr. Facture's annual earnings.

The alternative is to focus on his educational attainment, in which case there are two equally good sources. One is the *Current Population Reports* (Series P-60, No. 142) mentioned earlier. Table 37 reports the 1982 annual median income of male workers with one to three years of high school as $17,496. Adjusting this for inflation produces an estimated annual income of $18,376 for 1983. The other source is the Bureau of the Census study, *Lifetime Earnings Estimates for Men and Women in the United States: 1979.* The annual earnings by age in Table B-1 of this study have been adjusted to 1983 dollars and used to estimate Mr. Facture's lifetime earnings.

Table 2 presents an analysis of Mrs. Facture's pecuniary loss similar to the one in Table 1 for Mrs. Truck. Mr. Facture's work-life expectancy is 36.2 years. Using a net discount rate of 2 percent, the data from the *Monthly Labor Review* (column 1) leads to an estimate of $348,129 for the present value of the loss. The same analysis using the *Current Population Reports* data (column 2) produces a present-value estimate of $347,921, and the earnings profile constructed from the 1979 Bureau of the Census study (column 3) is the basis for an estimate of $353,668. In percentage terms, the difference from lowest to highest of these three is 1.6 percent—less than the difference between the two preferred results for Mr. Truck.

The analysis of these cases leads to the conclusion that alternative sources of data do not greatly affect present-value estimates of pecuniary loss. Thus, as long as an economist has chosen a source consistent with the

facts of the case, the data should not distort the accuracy of present-value results.

Productivity Gains and the Discount Rate

In calculating damages in a legal action, it is necessary to discount all future dollar values to present values. The basic problem for economists in this procedure is selecting the appropriate discount rate. To illustrate the sensitivity of estimated economic losses to alternative discount rates, Tables 1 and 2 show the present value of Mrs. Truck's and Mrs. Facture's losses when discounting at rates ranging from 0 to 4 percent. Clearly these awards are tremendously sensitive to the discount rate.

Unfortunately, identification of the "correct" discount rate has been a subject of disagreement among economists. Several methods have been suggested.[3] Our preference is for the "real interest rate" (or "net discount rate") approach. This approach defines the appropriate discount rate as the market interest rate minus the sum of the expected inflation rate and the expected rate of productivity growth for the economy on average. Further, in our opinion, current economic conditions warrant a net discount rate of 2 percent. This view is based on an estimate of 6.5 percent for inflation and 1.5 percent for future productivity growth. Thus, an interest rate of approximately 10 percent on treasury bills minus the sum of 6.5 percent and 1.5 percent equals a net discount rate of 2 percent.

The legal system may be resolving disagreement over the discount rate. Recently, in *Jones & Laughlin Steel Corp. v. Pfeifer,*[4] the Supreme Court ruled that 1 to 3 percent is an appropriate discount-rate interval within which courts may operate without risk of reversal on appeal.[5] It is a short step to the implication that since a net rate of 2 percent is the middle ground, it is preferred. Certainly, a uniform discount rate has an appeal in terms of simplicity and cost savings. Also, a net discount rate of 2 percent is consistent with our view of prevailing economic conditions.

Despite the appeal of uniformity, the Supreme Court was wise in defining an interval (as opposed to a single rate) that allows some flexibility in adjusting the rate to specifics of individual cases. The major reason for such adjustments is the variation in the potential for real income growth between individual workers.

Real income can grow only when worker productivity grows, and productivity growth should be divided into two components for analytical purposes. The first is the average economy-wide productivity growth that results from society's investment in knowledge, technology, and capital goods. The courts have called these "societal factors." Historically, this has averaged about 2.5 percent in this century. But given the structural changes of the 1970s, we believe 1.5 percent is a more reasonable estimate of average productivity growth in the future.

The second component is the deviation of an individual's expected productivity growth from the national average. Some workers have greater potential than others for income growth over their life cycle due to education and/or occupation. Some will experience above-average income growth; others, below-average growth. The courts have called these "individual factors."

Our defense of a net 2 percent discount rate is based on a 1.5 percent average productivity growth for the overall economy. This implies that the average worker can expect his or her real income to grow at 1.5 percent annually in the foreseeable future. But those workers who are expected to realize above-average productivity gains (and thus above-average real income growth) should have their earnings discounted at a net rate below 2 percent. For example, a worker who can reasonably expect a 2.5 percent growth in wage income would be fairly compensated by a present lump-sum payment only if his or her current earnings were discounted at 1 instead of 2 percent. On the other hand, a worker whose wage income is expected to grow at a below-average rate should have current earnings discounted at a net rate of 3 percent.

Identifying the exact amount of future growth for a worker's income is not possible even for workers who are well-established in occupations. The best economists can do is to make qualitative categorizations based on information in the BLS *Occupational Outlook Handbook*. It is reasonable to identify occupations in which productivity growth is expected to be average, above average, or below average. But courts should reject as overly speculative an opinion that productivity growth in a particular occupation, based on historical trends, will be 2.75 percent.

The wisdom of the Supreme Court's definition of an interval from which to select the appropriate discount rate now becomes clear. Even though economists do not have adequate techniques for projecting the exact earnings of a worker including expected growth due to individual productivity factors, we can identify workers who have approximately average, above-average, or below-

Table 2

Mrs. Facture's Pecuniary Loss

Net Discount Rate	(1) Average Earnings in Manufacturing	(2) Current Population Reports	(3) Bureau of the Census Earnings Profile
0%	$492,551	$492,256	$500,387
1%	$411,545	$411,299	$418,093
2%	$348,129	$347,921	$353,668
3%	$297,980	$297,802	$302,721
4%	$257,921	$257,767	$262,025

average growth prospects. Thus, a reasonable procedure for dealing with the productivity issue in estimating the present value of lost income is to start with a 2 percent net discount rate, which gives a worker credit for real growth equal to the expected national average. From this point, the discount rate may be adjusted to reflect the expectation of productivity gains.

Conclusion

Significant differences of opinion among economists do not typically arise about the use of alternative sources for earnings data. Estimates of the present value of future earnings are typically not sensitive to the choice of data source. Also, professionals do not differ on methods to analyze data. All economists agree on the basics of estimating an earnings profile and reducing it to present value.

Most differences of opinion arise about the choice of a discount rate. Therefore, it is good that the Supreme Court has set guidelines likely to lead to some degree of uniformity among economists making this choice. If the legal system continues to use economists as experts in cases of lost future earnings, however, the system should accommodate the judgment of the expert. Workers differ regarding their expected growth rate of wages, and some flexibility in the choice of a discount rate is the most appropriate way to adjust the analysis for these differences on a case-by-case basis. ■

Notes

1 Materials published by the Bureau of the Census can be obtained through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, 202-783-3238.

2 Materials published by the Bureau of Labor Statistics may be obtained through the Bureau of Labor Statistics, Office of Publications, Washington, DC 20212, 202-523-1239.

3 For a more extensive discussion, *see* Carlson, *Economic Analysis v. Courtroom Controversy: The Present Value of Future Earnings*. A.B.A. J., May 1976, at 628; Jensen, *The Offset Method for Determining Economic Loss*, TRIAL, Dec. 1983, at 84; and Mead, *Calculating Present Value*, TRIAL, July 1984, at 16.

4 103 S. Ct. 2541 (1983). In *Pfeifer*, the Court limited its holding to suits brought under the Longshoremen's and Harbor Workers' Compensation Act, 33 § U.S.C. 905(b).

5 For a discussion of *Pfeifer* and related cases, *see* George, Simien & Culbertson, *The Courts and Inflation*, TRIAL, July 1984, at 22.

Mann

ON INTEREST, COMPOUND INTEREST AND DAMAGES

I

IT is always with a sense of wonderment and frustration that one observes the extraordinary difficulties which so relatively simple a matter as the liability for interest on outstanding monetary obligations has encountered in English law. The subject has for many years been "riddled with inconsistencies,"[1] as was recognised as early as 1807. In 1978 the Law Commission produced a Report[2] of 68 pages with a Draft Bill of more than a dozen, partly very long and complicated clauses. Yet other legislators required no more than a sentence or two. In France damages and interest are put on the same level and are normally payable only in case of default (Article 1146). Impossibility of performance relieves the debtor of liability (Articles 1147 and 1148). Damages and interest are payable for the loss the creditor suffers or the gain of which he is deprived (Article 1149) and, except in case of fraud, are payable only to the extent to which they were foreseeable (Articles 1150 and 1151). Normally only the statutory rate is payable, *i.e.* an amount equal to the discount rate of the Banque de France. But in commercial cases, in case of bad faith and similar circumstances additional interest and even compound interest may be payable (Articles 1153 and 1154). In Germany the debtor's normal liability is limited to the statutory interest of 4 per cent., but the damages payable in case of default include interest at a higher rate (sections 246, 288) and may include compound interest. In Switzerland a defaulting debtor is liable as a rule to pay interest at the statutory rate of 5 per cent., but higher rates may be allowed by way of damages (Articles 104 to 106 of the Code of Obligations). In Scotland interest "is the normal compensation or damages given for the delay or failure of another party to pay a sum of money, whereby the creditor does not gain the ordinary legal profits of money or has to replace it from other sources"[3]; as Lord Kincairney put it in 1897, "in the ordinary case the damage due for delay in

[1] *McGregor on Damages* (14th ed., 1980), s.447, who refers to the reporter of *De Havilland* v. *Bowerbank* (1807) 1 Camp. 50, who noted: "It would fortunately be a very difficult matter to fix upon another point of English law on which the authorities are so little in harmony with each other."

[2] Cmnd. 7229. The Lord Chancellor had referred the matter to the Commission in 1974.

[3] D. M. Walker, *The Law of Damages in Scotland* (1955), p.182 or *The Law of Contracts* (1980), section 33.16; on Scotland see Lord Denning in *Jefford* v. *Gee* [1970] 2 Q.B. 130, 145, or already Lord Atkin in *Kolbin & Sons* v. *Kinnear & Co. Ltd.* (1931) 40 Ll.L.R. 241 and Lord Normand in *Riches v. Westminster Bank Ltd.* [1947] A.C. 390, 411.

payment of money is nothing but interest."[4] Where money is due and payment has been demanded, but withheld, interest is recoverable as of right, a fact which has had singularly little influence on English law, but deserves great emphasis. Similarly it is remarkable that, for instance, in Ontario as early as 1897 the legislator granted a right to interest.[5] In the United States of America Professor Williston has stated that "interest may be awarded by the law of damages," and has conferred his great authority upon and adopted the following summary by a Pennsylvanian court[6]:

> "In all cases of contract interest is allowable at the legal rate from the time payment is withheld after it has become the duty of the debtor to make such payment; allowance of such interest does not depend on discretion, but is a legal right. It is a right which arises upon breach or discontinuance of the contract provided the damages are ascertainable by computation and even though a bona fide dispute exists as to the amount of the indebtedness."

Interest is "an additional element of damage."[7, 8]

In England the legislature has intervened on no less than five occasions, *viz.* in 1833 by Lord Tenterden's Act, in 1838 to provide for interest on judgments, in 1934 by the Law Reform (Miscellaneous Provisions) Act, in 1969 by the Administration of Justice Act and in 1983 by the insertion of section 35A into the Supreme Court Act 1981 (and corresponding provisions of the County Courts Act 1959 and the Arbitration Act 1950). As a result of this legislation in most cases the court has a discretion to award or withhold interest—a typical compromise of modern English law of which Lord Ellenborough C.J. disapproved when he said in 1807: "My great object is to have a fixed rule and to exclude discretion."[9] Although Lord Ellenborough's view is entitled to much sympathy and support, it must be admitted that in practice judges almost invariably award interest whenever they have a discretion to do so; accordingly the distinction has become almost academic. By section 35A of the Supreme Court Act 1981 put into force in 1983 they

[4] Quoted by Walker *loc. cit.*

[5] For details see *Toronto Railway Co.* v. *Toronto Corporation* [1906] A.C. 117.

[6] *Law of Contracts* (3rd ed. by Jaeger, 1968), Vol. 11, s.1412.

[7] s.1417.

[8] An elementary, almost misleading comparative survey is to be found in paragraphs 57 to 64 of the Law Commission's Working Paper No. 66 (1976) on Interest. No reference is there made to the Commonwealth. Nor is there any reference to compound interest or to the really fundamental practice of interest (additional to the statutory interest) being payable by way of damages for default. Hence the realities of the legal situation in foreign countries is not discernible. See also paragraph 41 of the Report, n.2 above.

[9] *De Havilland* v. *Bowerbank* (1807) 1 Camp. 50.

may (and will) award interest even where after the institution but before the termination of the proceedings the debt is paid.[10]

Yet there remain certain problematical areas. There cannot be many cases in which the pre-1983 law falls to be considered and it has to be decided whether interest may be ordered to be paid in cases in which payment was made after the institution but before the termination of proceedings. But the question remains whether interest may be claimed in cases in which the principal was paid before the institution of proceedings. Moreover, is an award of interest always discretionary, as the statutes of 1934 and 1981 seem to indicate, or can it be claimed as of right? Can interest be claimed as a head of damage? Are there cases in which compound interest may be claimed, though the statutes of 1934 and 1981 do not authorise it? To these and connected problems it is now intended to turn.

II

It is generally believed and has recently been authoritatively stated[11] that the decision of the House of Lords in *London Chatham and Dover Railway Company* v. *South Eastern Railway Company*[12] was to the effect "that at common law, in the absence of any agreement or statutory provisions for the payment of interest, a court has no power to award interest, simple or compound, by way of damages for the detention (*i.e.* the late payment) of a debt." The decision of 1893 doubtless had this effect. Nevertheless close analysis provokes a question mark. The appellant's argument was "that interest may be claimed at common law on sums improperly detained,"[13] and Lord Herschell L.C. so stated the argument. He would have been inclined to uphold it

> "for this reason that I think that when money is owing from one party to another and that other is driven to have recourse to legal proceedings in order to recover the amount due to him, the party who is wrongfully withholding the money from the other ought not in justice to benefit by having that money in his possession and enjoying the use of it, when the money ought to be in the possession of the other party who is entitled to its use."[14]

But a decision of the Court of King's Bench of 1829[15] and the restrictive character of the legislation of 1833 prevented Lord

[10] This provision stems from the Report of the Law Commission in 1978: n.2 above.
[11] *President of India* v. *La Pintada Compania Navigacion S.A.* [1984] 3 W.L.R. 10, 17 (hereinafter called *La Pintada*), *per* Lord Brandon of Oakbrook.
[12] [1893] A.C. 429.
[13] p.432.
[14] p.437.
[15] *Page* v. *Newman*, 9 B. & C. 378.

Herschell from following his sound instincts, although he was not altogether satisfied with the reasons given almost 70 years earlier.[16]

It will be noted in the first place that no argument was founded on or reference made to the decision in *Hadley* v. *Baxendale*[17] which in 1854 had conclusively defined the conditions in which damages for breach of contract were and are payable. Instead the House of Lords merely relied on a decision of 1829 given 25 years before that leading case on damages. In other words, in 1893 no lawyer viewed the problem in the light of the law relating to breach of contract or duty and to damages. This is not only a remarkable oddity, but, as will appear, also a point of fundamental significance.

Secondly, one cannot help suspecting that there did not exist complete clarity as to the legal nature of interest. Lord Herschell's reference to the benefit derived by the debtor from his failure to pay indicates that what was in his mind was the idea of the debtor's enrichment rather than the relevant and much more important element of the loss suffered by the creditor or, in other words, the characteristics of damages. Since the days of Roman law interest has rightly and, indeed, necessarily been treated as a form of damages, as standardised damages; one of the leading Roman lawyers of our times, Professor Kaser, speaks of the Roman idea of "pauschalierter Schadensersatz."[18] And, as we have seen, Scottish law, the French Civil Code, the Swiss Code of Obligations and American law equiparate damages and interest. The same idea has frequently been expressed in Germany and was in recent years happily formulated by Professor von Maydell.[19] Even in England Lord Wright said[19a]:

> "The essence of interest is that it is a payment which becomes due because the creditor has not had his money at the due date. It may be regarded as representing the profit he might have made if he had had the use of the money, or, conversely, the loss he suffered because he had not that use. The general idea is that he is entitled to compensation for the deprivation."

Enrichment, on the other hand, is an entirely different principle. If it were the test for the payment of interest, the question would be, not what if anything the creditor lost or failed to gain, but what if

[16] Similarly the restrictive character of the legislation of 1934, 1969 and 1983 prevented Lord Brandon from departing from the decision of 1893. Thus we remain saddled with bad law, because the legislator intervened, but failed to reform it satisfactorily. The common law is ossified by ineffective legislation—a somewhat ironic situation.

[17] (1854) 9 Ex. 341.

[18] *Das Römische Privatrecht* (1971), p.516. The translation is difficult. Perhaps "liquidated damage" will do.

[19] *Geldschuld und Geldwert* (1974), p.140: "Rather the claim for interest is the normal form of the claim for damages in the event of the default of the debtor of a monetary obligation."

[19a] *Riches v. Westminster Bank Ltd.* [1947] A.C. 390, 400. Note the word "entitled."

anything the debtor saved or earned. It may well be, therefore, that, if in 1893 the argument had been put on the footing of the law of damages rather than on the sterile doctrine of precedent which commanded obedience to a decision rendered 25 years before the law of damages was fully developed, the House of Lords would have decided differently. Appreciation of that fact might have induced subsequent generations of lawyers by established techniques to get rid of the shackles of the decision of 1893: distinguishing it, pointing to the inadequate argument, stressing the misplaced reference to the debtor's enrichment rather than the creditor's loss, limiting it to the specific facts of the case, *i.e.* sums due in respect of a mutual accounting arrangement, might have provided useful weapons.

One half of this step was taken in 1952 by Denning L.J. (as he then was) whom Romer L.J. followed.[20] With his usual grasp of the essentials of a problem Lord Denning tried (albeit *obiter*) to rationalise the decision of the House of Lords in 1893 by taking up the suggestion made in 1867 by Bullen and Leake,[21] but ignored by the House of Lords in 1893 that interest considered as damages is "as a rule too remote," but may well be recoverable when, as in the case before him, "there is a special loss foreseeable at the time of the contract as the consequence of non-payment." The point was actually decided in this sense in 1981, when the Court of Appeal held[22] that the decision of 1893 did not preclude the recovery of interest accrued before payment of the capital and before the institution of proceedings if it could be claimed under the second limb of the rule in *Hadley* v. *Baxendale*[23] according to which damages are recoverable where they are "such as may reasonably be supposed to have been in the contemplation of both parties, at the time they made the contract, as the probable result of the breach of it." This approach, approved recently by the House of Lords in the case of *La Pintada,*[24] on the one hand establishes the correctness of subsuming interest to damages and on the other hand discloses what must respectfully be described as a remarkable inconsistency: if interest can be claimed under the second limb of the rule in *Hadley* v. *Baxendale* why should it not also be recoverable under the first limb, where damages are such "as may fairly and reasonably be considered arising naturally, *i.e.* according to the usual course of things" from the breach? To say that interest considered as damages is too remote is an argument

[20] *Trans Trust* v. *Danubian Trading Co. Ltd.* [1952] 2 Q.B. 297, 306.
[21] 3rd ed. (1868), p.51. It will be submitted below that Bullen and Leake were far too narrow.
[22] *Wadsworth* v. *Lydall* [1981] 1 W.L.R. 598 (Ormrod and Brightman L.JJ. and Reeve J.).
[23] (1854) 9 Exch. 341.
[24] Above n.11.

which at the present time is no longer realistic or persuasive and which can only be described as an empty phrase. The modern test is whether the debtor could reasonably foresee that in the ordinary course of things the loss was likely to occur or was on the cards.[25] Who would refuse to impute such knowledge to a debtor? Who would venture to suggest that a defaulting debtor could not reasonably foresee interest as the creditor's loss flowing from the failure to pay?

There is a third point which renders the decision of 1893 a freakish one. In 1874 it was finally established by the House of Lords[26] that, where there is an obligation to pay a sum of money with interest up to a certain due date, but without any mention of interest payable after the due date, then, in the words of Lord Cairns L.C.,[27]

> "according to the well-known principle which has been referred to in many cases . . . any claim in the nature of a claim for interest after the date up to which interest was stipulated for, would be a claim really, not for a stipulated sum and interest, but for damages, and then it would be for the tribunal before which that claim was asserted to consider the position of the claimant and the sum which properly and under all the circumstances should be awarded for damages. No doubt, prima facie, the rate of interest stipulated for up to the time certain might be taken, and generally would be taken, as the measure of interest, but that would not be conclusive. It would be for the tribunal to look at all the circumstances of the case and to decide what was the proper sum to be awarded by way of damages."

Or as Lord Chelmsford put it,[28]

> "the distinction seems to be well established between cases where the interest is expressly reserved in the instrument, and when it is not. In the latter case it is recoverable, not as interest according to the contract, but as damages for the breach of it."

One notices the emphasis upon the nature of the claim arising upon default; it is for damages. Furthermore no doubt is expressed about the existence or justification of the claim; in particular nothing is said about damages being too remote. Is there really any rational basis for suggesting that damages by way of loss of interest are foreseeable, where the instrument provides for the payment of

[25] *Victoria Laundry (Windsor) Ltd.* v. *Newman Industries Ltd.* [1949] 2 K.B. 528, 539, *per* Asquith L.J. (as he then was).
[26] *Cook* v. *Fowler* (1874) L.R. 7 H.L. 27.
[27] At p.32.
[28] At p.35.

interest up to the due date, but are not foreseeable where in respect of the period before default no interest is stipulated? In both cases foreseeability of damage by way of loss of interest in the ordinary course of things is a question of fact. Judges of fact should not be bound by a dogma expressed in 1829. *Cook* v. *Fowler* was decided 45 years later. The case was not referred to in argument in 1893 or in 1984. The House of Lords was therefore unaware of the illogicality which it created and which subsequent generations seem to have accepted with a substantial degree of resignation.

If these submissions were compatible with the present state of the law it would mean that, apart from and parallel to the judicial discretion conferred by statute to award interest in the event of proceedings to recover the principal, there exists a common law right to interest under either limb of *Hadley* v. *Baxendale, i.e.* in practice primarily where the proceedings for the recovery of the principal are never instituted. The co-existence of a right of the creditor and a discretion of the court may, indeed, be another oddity. It can readily be explained by the fact that the Law Revision Committee's Second Interim Report[29] which led to the Act of 1934 is not only extremely short, but also refrains from analysis of the problem or from any search for a principle; it simply states that the Committee "have come to the conclusion that the time has come when the old and rigid Rule should now be altered." However this may be, the co-existence above referred to has a firmly established precedent which renders it much less striking. It has long been a rule of equity that where a person has improperly profited from his fiduciary position he is liable to pay interest. In *Wallersteiner* v. *Moir*[30] it was argued that interest could only be awarded under the Act of 1934. An exceptionally strong Court of Appeal (Lord Denning M.R., Buckley and Scarman L.JJ.) rejected the argument and held that the equitable right to interest existed independently of the judicial discretion conferred by statute. In addition we know that on account of equitable principles Admiralty Courts have always awarded interest in a large variety of cases,[31] and wholly independently of the judicial discretion conferred by statute. If this is so, why should the right to

[29] Cmd. 4546. The Committee seems to have taken its task a little lightly. Perhaps the explanation is that a Law Reform (Miscellaneous Provisions) Act was imminent and it was necessary to render the Report so as to permit the problem of interest to be included.

[30] [1975] Q.B. 373. On this case and the significance of the equitable rule see below—n. 60 and text. The numerous old cases on the equitable rule are referred to and discussed in the three judgments which in those days the Court of Appeal used to deliver to the great benefit of the law and of lawyers.

[31] In *La Pintada, ubi supra,* Lord Brandon (at pp.20 *et seq.*) held that in Admiralty equitable

interest by way of general damages not also be recognised, seeing that interest as special damage is payable independently of statute?

It is to be feared, however, that this line of reasoning cannot stand with the decision of the House of Lords in *La Pintada* which displays some very remarkable features and needs careful analysis. In 1977 arbitration proceedings were instituted for the payment of outstanding freight and demurrage. In 1981 the principal amounts so claimed were paid and accepted. The claimants limited their demands to interest and costs. In 1982 the arbitrator awarded compound interest from the due dates to the date of payment and ordered that interest should continue to be compounded to the date of the award, it being obscure how the compounding was to be effected. But the arbitrator also stated a special case asking whether he had a right or a discretion to award (compound) interest. The question of compound interest, important though it is, receives no more than passing mention in the opinion delivered by Lord Brandon of Oakbrook and concurred in by Lord Fraser of Tullybelton, Lord Scarman, Lord Roskill and Lord Bridge of Harwich. The reason is that interest was disallowed altogether on the ground that before the amendment to the Supreme Court Act 1981, which came into force in 1983, neither a judge nor an arbitrator could award interest in cases in which after the institution of proceedings, but before judgment or award the debtor paid the principal amount, for the Act of 1934 did not authorise the payment of interest in such a case.

It is possible that so perverse a result which probably isolates England from the rest of sea-faring nations (including Scotland) could have been avoided by a simple device. The arbitration relating to freight and demurrage was in the nature of Admiralty proceedings and could therefore have been said to be governed by Sir Robert Phillimore's highly significant, indeed authoritative dictum in *The Northumbria*[32]:

> "The principle adopted by the Court of Admiralty has been that of the civil law, that interest was *always* due to the obligee, when payment was not made, ex mora of the obligor; *and that, whether the obligation arose ex contractu or ex delicto.*"

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principles did not go so far as to allow interest on sums paid before judgment or compound interest. It is very odd that equitable principles allow these very things in cases in which the defendant has profited from a breach of his fiduciary position, but disallow them in Admiralty. Is equity really in so striking a manner two-faced? Are there two different equities? The ingenuity of lawyers is such that many would answer in the affirmative. See also *Polish Steamship Co.* v. *Atlantic Maritime Co. ("The Garden City")* [1984] 3 W.L.R. 301, where Kerr L.J. said *obiter* (p.315) that "there was no general power in Admiralty to award compound interest."

[32] (1869) L.R. 3 A. & E. 6, 10 (emphasis supplied).

But though Lord Brandon noted this dictum by a mere reference,[33] he ignored its implications, failed to investigate "the civil law" (possibly as adopted by Scotland), treated as a five times affirmed "misconception" the attempt previously made in *Tehno-Impex* v. *Gebr. Van Weelde Scheepvaartkantoor*[34] to develop a distinct rule for Admiralty cases, and put them on the same level as common law cases governed by the decision of the House of Lords of 1893.

This led Lord Brandon to the question whether the House should depart from the rule which it considered to have been laid down by the House of Lords in 1893. Regrettably, yet understandably he felt unable to do so, seeing that the legislature had intervened without retrospective effect and, so one may be permitted to add, seeing further that as a result of the legislation of 1983 any departure from the decision of 1893 could only reach a very limited number of cases that had occurred in the past. The question whether *in casu* the general law would have allowed the award of interest under the first and, possibly, the second limb of the rule in *Hadley* v. *Baxendale* was not discussed. In the result it must now be accepted that in cases which are not covered by the legislation of 1983 interest in respect of sums paid after the institution, but before the termination of proceedings cannot in general be claimed.

Lord Brandon, however, went further. By way of pure *obiter dicta* he discussed the question whether interest would have been payable if the debtor had discharged the principal sum before the institution of arbitration proceedings. On the authority of the decision of 1893 this was denied and in this respect too a departure from that case would have been inappropriate, because the point was not in issue at all, though this was not the reason given for the refusal to invoke the "Practice Direction" of 1966.[35] Lord Brandon's observations on this point acquire particular authority from the fact that Lord Scarman and Lord Roskill demanded early legislation to remove an "obvious injustice." They thus made it very clear that in their view the present law could not help. This, therefore, is a case in which the *obiter dicta* are so strong that no argument of a merely technical character can be expected to displace them.

Nonetheless there remains one certain and one possible escape.

The former occurs where the second limb of the rule in *Hadley* v. *Baxendale* applies, for, as pointed out above, the House expressly approved the decision of the Court of Appeal in

[33] At p.21.
[34] [1981] Q.B. 648.
[35] [1966] 1 W.L.R. 1234.

Wadsworth v. *Lydall.*[36] It may well be that a special loss can be pleaded and proved in a much larger number of cases than has hitherto been thought possible. In many cases the pleader's mind may not have been directed to the point, but will, as a result of *La Pintada,* become much more alert.

The possible escape also depends on an appropriate pleading. If the plaintiff pleads (and if necessary proves) that his loss of interest resulting from the non-payment of his debt was in the ordinary course of things foreseeable, likely or on the cards (which in these days should cause no difficulty) a judge could not reject the claim on the ground of the damage being too remote. Nor could he avoid embarrassment by holding that the claim is in truth not one for damages at all; a broadly based argument, setting forth the fundamental aspects of the problem, such as may never have been addressed to any court, should establish the true character of interest. Already in 1807 Sir Vicary Gibbs, then Attorney-General, later Lord Chief Baron and still later Chief Justice of the Common Pleas, argued that a plaintiff "had a right to recover the amount to which he was damnified by the money being withheld from him. This would include interest and the damages were to be shaped, not by what the defendant had gained, but what the plaintiff had suffered." Lord Ellenborough, it is true, held that "the rule proposed of considering how far the plaintiff was damnified was so wide that it would let in interest in almost every case."[37] Similarly, in *La Pintada* Lord Bridge of Harwich, after having expressed his admiration of Lord Brandon's speech, feared that[38]

> "the alternative rule . . . could only be that in all cases of late payments general damages would be recoverable as of right calculated in accordance with the same common law principles that govern the award of general damages in the case of any other breach of contract. Such a sweeping provision would not merely be inconsistent with, but would . . . effectively override the carefully defined and restricted statutory provisions for the discretionary award of interest in certain cases so as to render them a dead letter."

It is respectfully submitted that to read an exclusion clause into these statutory provisions would not only be inconsistent with much of the case law to which reference has been and will be made, but would also be contrary to firm principles of statutory interpretation. Nor is there any reason why the award of interest by way of general damages in all cases in which the facts are

[36] Above n.22.
[37] Above n.9.
[38] p.14.

pleaded and proved should cause alarm; Lord Scarman and Lord Roskill seem to require just that in order to free creditors from "a legitimate sense of grievance and an obvious injustice."

Is it conceivable that at this late stage the common law of England will of its own motion rid itself of the ballast of verbiage and errors of two centuries and reinstate a simple, yet fundamental rule in matters of everyday life?

III

If, as the preceding remarks suggest, the debtor's default in paying a sum of money due from him renders him liable, subject to the rules in *Hadley* v. *Baxendale,* to pay damages in the form of interest, the liability to pay interest where the principal claim is one for damages is even more likely to be founded upon the common law rather than the statute, upon the reason of the law rather than the vicissitudes of legislation. Two different sets of fact fall to be considered. The plaintiff may be entitled to damages, whether for breach of contract or tort, and claims interest on the sum awarded or he may be entitled to interest as a specific item of damage.

The latter proposition is established by three recent decisions. In *Bushwall Properties* v. *Vortex Ltd.*[39] the plaintiffs had to borrow money and pay interest thereon, because on account of the defendant's breach of contract they had to provide a purchase price sooner than they would have done under their original contract. Oliver J. (as he then was) said[40]: "the sum so claimed is not in any relevant sense interest itself, it is the sum payable by way of damages for breach of contract." In *The Borag*[41] the plaintiffs claimed an unusual amount of interest which they allegedly had to pay for a guarantee provided to obtain the release of their ship from arrest wrongfully brought about by the defendants. The Court of Appeal held that this particular expense was not reasonably foreseeable, but had this not been so they clearly would have seen no reason why the claim should not have been allowed. Similarly in *Brandeis Goldschmidt & Co. Ltd.* v. *Western Transport Ltd.*[42] the plaintiffs claimed, by way of damages for wrongfully detained goods, interest on overdrafts they allegedly had to obtain. Again the court held that there was no evidence of the loss, but if

[39] [1975] 1 W.L.R. 1649, affirmed on different grounds [1976] 1 W.L.R. 591.
[40] At p.1660.
[41] [1981] 1 All E.R. 856, where the parties' names are *Compania Financiera Soleada S.A.* v. *Hamoor Tanker Corporation.*
[42] [1981] Q.B. 864.

this had not been so would have been prepared to allow the claim. In particular Brandon L.J. (as he then was) said[43]:

> "I do not think it matters much whether the plaintiffs financed the purchase of the copper from their own resources or by borrowing from the bank. If they used their own resources they would lose the interest which they would otherwise have earned by investing moneys so used. If they borrowed from the bank they would have to pay interest on the amount so borrowed."

As regards interest on damages there does not seem to have been any difficulty in the more recent past. A representative case of 1868 arose from the defendant's breach of a contract of affreightment as a result of which part of a piece of machinery carried to Vancouver was lost. The plaintiffs were held to be entitled to damages equal to the value of the article lost together with interest thereon to compensate them for the delay.[44] There is no evidence that in such or similar circumstances interest was ever withheld in the course of the last 100 years or so or that the absence of legislative intervention was in any way noticeable.

While the law seems to have been similar for the tortious detention of or damage to property,[45] particularly in Admiralty cases,[46] one learns with astonishment that "before 1970 it was not the practice to make awards of interest on damages in cases arising out of personal injury and wrongful death."[47] The reason for this omission cannot readily be understood. There is no suggestion in the Report of the Law Revision Committee of 1934 that damages for tort should be excluded from the power of awarding interest. On the contrary, paragraph 9 of the Report states:

> "It has often been suggested that although this might at once be conceded so far as debts, damages for breach of contract and special damages for tort are concerned, the cases where general damages are given, as for instance in running down cases or indeed for say libel or slander, or for pain and suffering in personal injury, they might be left as they are, as standing on a different basis. There seems, however, to be no reason for a different rule in these latter cases. To take as an

[43] At p.873.

[44] *British Columbia Saw Mill* v. *Nettleship* (1868) L.R. 3 C.P. 499. See on this case *The Northumbria*, above n.32, at p.10.

[45] *McGregor*, ss.459 and following.

[46] In *Liesbosch Dredger* v. *Edison S.S.* [1933] A.C. 449 the plaintiffs recovered damages for the loss of their vessel. Lord Wright (p.468) with the approval of Lords Buckmaster, Warrington, Tomlin and Russell of Killowen said: "It is on the true value so ascertained that the interest at 5 per cent. from the date of the collision will run, as further damages, on the principles of the Court of Admiralty stated by Sir C. Butt in the *Kong Magnus* [1891] P. 223, that is, damages for the loss of the use of the money representing the lost vessel as from the date of the loss until payment."

[47] *McGregor*, s.465.

> extreme example, a libel action in which the defendant is held liable. The Court is in effect deciding that he has defended the case wrongly and without sufficient grounds. He ought, that is to say, to have admitted the claim when made and have offered a proper sum by way of damages. In any event the Court will have a discretion which can be exercised in cases accordingly where it would be unreasonable to award interest."

The fact is, however, that those responsible for *Jefford* v. *Gee*[48] brought about what may safely be described as a sensational development, for it is now accepted law that interest is payable in respect of damages for pain and suffering and loss of amenities, that half the normal rate is payable for special damages (including loss of earnings) up to the date of judgment, but no interest is payable for future losses; this is entirely satisfactory and logical, particularly since the House of Lords has made it clear that assessment of damages as at the date of trial does not exclude the award of interest.[49] Yet it seems that in many cases of general damages such as damages for defamation interest is not usually allowed, probably on the by no means unreasonable basis that the award of damages is such as to take the delay and the appropriate compensation for it into account.

The question whether interest is recoverable where damages are paid before the institution of proceedings cannot normally arise. The liability for damages can be discharged, not by payment, but by accord and satisfaction only. The accord would as a rule include or exclude interest as the case may be, but where the accord leaves the problem of interest open it becomes a matter of construction whether a separate claim for interest can or cannot be pursued. The fact that interest on damages is specifically referred to in the statutes of 1934 and 1981 does not exclude an award of interest based on the general law of damages. The decision of the House of Lords of 1893 does not relate to such a case and one may hope that after almost a century the courts will not do anything to aggravate the inconsistencies and oddities which bedevil the subject.

IV

There remains, finally, the problem of compound interest. It has four different aspects.

1. In the first place the question arises whether and in what circumstances the liability to pay compound interest can be validly agreed between contracting parties. In this respect another

[48] [1970] 2 Q.B. 130, with observations by Lord Denning on the position in the law of Admiralty and in Scotland (pp.144, 145).

[49] *Pickett* v. *British Rail Engineering Ltd.* [1980] A.C. 151.

remarkable situation has arisen. A typical statement, repeated in many textbooks, is that "compound interest is payable either by agreement or custom".[50] Now we know that where current accounts are kept by the parties or where interest is charged or paid by a bank the payment of compound interest is not only permitted, but also usual practice. But where is the authority for the proposition that in other cases it is possible validly to agree in advance that compound interest should be paid? The highest available authority seems to be a decision of the House of Lords in 1841,[51] when the Lord Chancellor, Lord Cottenham, said:

> "Generally a contract or provision for compound interest is not available in English law, as was decided by Lord Eldon in *ex parte Bevan* (1803) 9 Ves. 324, except perhaps as to mercantile accounts current for mutual transactions."

This decision may have been ignored, particularly in a very recent case which came before Browne-Wilkinson J. (as he then was) and in which a clause providing for arrears of interest to be capitalised after 21 days and themselves to bear interest from the due date was not even attacked.[52] Strictly, however, the law still seems to be as laid down by Lord Cottenham and this would not be very strange in the light of the fact that the problem of interest upon interest has a long history and as a general rule is condemned by most countries. In Roman law "anatocism" was absolutely prohibited[53] and under its influence the prohibition continued for many centuries on the Continent. In France the Code Civil demands a special agreement and limits compound interest to yearly rests (Article 1154 of Code Civil); no restriction applies in case of current accounts or where in case of other monetary obligations no payment of a specific principal sum is in issue (Article 1155). In Germany the payment of compound interest cannot be agreed in advance, but numerous exceptions apply, particularly in the case of banking institutions and current accounts (Article 248 of the Civil Code, Article 355 of the Commercial Code). In Switzerland (Article 314) the law is similar, and the same seems to apply to Scotland.[54] In the United States of America the broad rule is that contracts to pay compound interest are void.[55]

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[50] *Chitty on Contracts* (25th ed., 1983), s.3174; similarly *Halsbury* (4th ed.), Vol. 32, s.107; Goode, *Payment Obligations* (1983), p.81.

[51] *Ferguson* v. *Fyffe* (1841) 8 Cl. & F. 121 or *English Reports* 8, 49.

[52] *Multiservice Bookbinding Ltd.* v. *Marden* [1979] Ch. 84.

[53] Code de usuris, IV, 32, X, 28.1: "Quapropter hac appertissima lege definimus nullo modo licere cuidam usuras praeteriti vel futuri temporis in sortem redigere et earum iterum usuras stipulari."

[54] Walker (above n.3), p.189.

[55] Williston *loc. cit.* s.1417 or *McCormick on Damages* (1935).

The question of compound interest payable by way of agreement did not come within the Law Commission's terms of reference and its Report therefore does not throw any light on the point.

2. The next question is whether compound interest can be claimed as an item of damage actually suffered. It is submitted that the answer should clearly be in the affirmative. In particular the statutes of 1934 or 1981 do not exclude the recovery of such damage. This suggestion is, it is believed, in harmony with an important decision of Oliver J. referred to above.[56] As a result of the defendant's breach of contract the plaintiff had to borrow money for which he paid interest. In the action he claimed by way of damages the interest so paid and interest in respect thereof. The learned judge[57] saw no reason why it should not be capable of carrying interest in the ordinary way. The statutes of 1934 and 1981 with their exclusion of awarding compound interest (possibly) apply to a case in which an interest-bearing debt is sued for, for instance a mortgage debt or an instalment of interest in arrear, although even in such cases anyone who appreciates that the creditor is entitled to damages for breach of contract may well reach the conclusion that in accordance with the general rules of the law of damages compound interest may be payable as a matter of right.

3. This leads to the third aspect of compound interest: is it open to the court to hold the plaintiff entitled to compound interest in respect of damages awarded to him? In theory the answer should once again be in the affirmative. If the defendant has undertaken, but fails to repair my ship and if, therefore, I have to charter another ship to fulfil my obligations, if in order to do so I have to obtain bank credit in respect of which I have to pay compound interest there is no reason of principle why I should not be indemnified for such outlays under the same conditions as apply to any other item of damage. If I spend my own money to charter the substitute ship and if in the normal course of business I would have left the money on deposit account where it would have earned compound interest I should not be precluded from recovering my loss in accordance with the general principles governing damages.

The difficulty again lies in the fact that these solutions which, it is submitted, conform to common sense introduce inconsistencies into the law, for if the defendant is responsible for a collision causing the loss of my ship and if I invoke the jurisdiction of the Admiralty Court the House of Lords tells me that the equitable principles applicable in Admiralty preclude the award of compound

[56] Above n.39.
[57] At p.1660.

interest and that the contrary view of the Court of Appeal was due to a "misconception,"[58] which, curiously enough, counsel for the respondents did not consider sufficiently equitable to support it. Yet the civil law which according to Sir Robert Phillimore the Court of Admiralty used to apply[59] as well as equitable principles relating to the consequences of a breach of fiduciary duties equally clearly render the defaulting defendant liable to pay compound interest.[60] It is believed that here as elsewhere we must put up with inconsistencies and at the same time attempt to confine those rules which are unattractive and perhaps even illogical to the narrowest possible field of application. Where a sound development of the law has not been pre-empted by binding authority it should not be impeded by analogies which in truth may be unconnected and distinguishable deviations. The Act of 1934, it is submitted, does not stand in the way, for it merely does not "authorise the giving of interest upon interest," but does not prohibit it.

The rule which has been suggested should also cover cases of damages for personal injuries or fatal accidents. With a view to these specific cases economists have strongly condemned the practice of disallowing compound interest.[61] And it is indeed difficult to justify it. Where this item of loss is reasonably foreseeable (as it will be in most circumstances) the wrongdoer should make it good.

In its Working Paper No. 66 the Law Commission expressed its provisional view that compound interest "would lead to undesirable complications."[62] In its Report the Law Commission said[63]:

> "Whatever attempts are made at streamlining it, a system for compounding statutory interest is bound to be either too crude to be fair in all cases or too intricate to be practicable. We think it is better to get away from compounding altogether and to recommend a simple rate. This is what we suggested in our working paper and we were strongly supported by the great majority of those who sent us comments. A simple rate is applied in all the foreign legal systems that we have examined."

The last sentence, taken literally, may be correct. Yet there is no doubt that in many countries the award of general damages carries compound interest. The general law of damage applies. Thus in Germany section 288 of the Civil Code provides that no default

[58] *La Pintada, ubi supra,* at p.21, *per* Lord Brandon. And see *The Garden City,* above n.31.
[59] Above n.32.
[60] *Wallersteiner* v. *Moir* [1975] Q.B. 373 and the authorities there referred to. But see *O'Sullivan v. Management Agency and Music Ltd.,* [1984] 3 W.L.R. 448.
[61] See Roger Bowles, *Law and the Economy* (1982), at pp.195–199.
[62] Para. 114.
[63] Para. 85 of Cmnd. 7229.

interest is payable in respect of interest, but continues: "This is without prejudice to the creditor's right to be indemnified in respect of the damage caused by the default"; it is generally accepted that the creditor of interest can obtain compound interest in respect of default if he proves that on account of the debtor's default he had to pay bank interest or that he could have invested the interest at a certain rate. It is in fact not difficult to think of cases where litigation takes a long time and where, therefore, the failure to include compound interest causes loss and injustice. It should simply be a matter of proof. Where it is not worthwhile, the plaintiff will not adduce the necessary evidence and thus avoid the complications which the Law Commission feared.

4. Finally it is necessary to draw attention to a feature of the problem of compound interest, which is characterised by the absence of any learned discussion, whether it be critical or approving. This is the fact that in England (and it may be only in England) interest up to the date of judgment, together with the principal, is incorporated into the judgment in accordance with the Act of 1833 and that the total amount so calculated carries interest at the rate from time to time in force for judgments. Hence compound interest becomes payable on the interest element contained in the judgment debt.[64] In other countries judgment is given for the principal sum together with interest at a defined rate from a certain date until payment, so that compound interest is not payable.

It is not easy to justify the justice of the English solution, though from a doctrinal point of view it may be founded upon and supported by the principle of the merger by judgment. In fact it is by no means free from dangers. A foreign court which is asked to render an English judgment enforceable may well reach the conclusion that the element of compound interest, not contemplated by any contractual provision, is contrary to its *ordre public*. The rejection of anatocism still carries much weight and, although anatocism in the strict sense is not in issue, a liability to compound interest may shock the conscience of foreign judges. Even in England the uncritical acceptance of the practice is not free from surprise.

V

If one wishes to draw a general conclusion from the preceding submissions it is a simple one. It is necessary to appreciate that interest is a form of damage which the common law of England

[64] This is certainly not so in case of a decree of limitation in Admiralty (*The Garden City*, above n.31) and may altogether be different in case of judgments in Admiralty.

refused to make good on the only ground ever put forward, *i.e.* that stated by Bullen and Leake in 1868[65] according to which the damage was too remote. Once this explanation is seen to be wrong or at least too narrow, we do not need a complicated piece of legislation such as the Law Commission proposed in 1978. If the courts cannot put the matter right by the methods outlined in the preceding pages, particularly at the end of section II (and in view of *La Pintada* this is unfortunately likely), then all we need is a short statute which abolishes the unfortunate decision of the House of Lords in the *London Chatham and Dover Railway* case, repeals the legislation conferring upon the courts the discretion which Lord Ellenborough rejected, and substitutes for it the rule that in the event of there being default in the performance of a monetary obligation, for which the obligor is responsible, he shall be liable to pay interest in accordance with the law of damages or with equity. The consequence would be that at last English law would be liberated from shackles which must cause regret or even embarrassment. The fact that in 1984 a foreign shipowner who is owed freight and demurrage by a foreign charterer and who seeks relief in English arbitration proceedings should be disentitled to interest in case of payment made late, but before the institution of proceedings is disquieting[66]; so, indeed, is the fact that in 1984 the commercial world should be ruled by an inadequate argument presented in 1893 and that at the same time the House of Lords should describe as "misconception" sensible attempts by judges of high authority to reform the law at least in the field of Admiralty. If it is preferred to introduce a statutory rate (such as the Bank of England's minimum lending rate) there can be no objection, provided it is made clear that this is without prejudice to claims for additional relief in accordance with the principles of the law of damages and equity. The law of damages as developed after 1829 which governs the question of interest can solve all problems, so that probably the separate rules of equity can also be dispensed with, though they are based on the idea of the trustee's enrichment rather than the creditor's loss.

What will for ever remain, however, is a fascinating lesson for students of jurisprudence. The history of interest, particularly in the field of Admiralty, displays a lack of legal analysis and a degree of positivism and inflexibility which show the common law of England at its worst.

F. A. MANN.*

[65] Above n.21.

[66] See the comments of Lords Fraser, Scarman and Roskill in *La Pintada*.

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Accounting for Inflation and Other Productivity Factors When Calculating Lost Future Earning Capacity

INTRODUCTION

With its recent decision in *Paducah Area Public Library v. Terry*,[1] the Kentucky Court of Appeals became one of a growing number of courts[2] taking into consideration inflation[3] or other productivity factors[4] when awarding damages for lost future earnings.[5] By applying the "total offset" method,[6] the

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[1] 655 S.W.2d 19 (Ky. Ct. App. 1983).

[2] As of the date of this writing at least nine federal circuit courts of appeals and 27 states had adopted some approach for computing lost future earnings taking into consideration inflation or other productivity factors. They included the 1st, 2d, 3d, 5th, 6th, 8th, 9th, 10th and D.C. federal circuit courts of appeals, Alaska, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Montana, Nebraska, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington and Wisconsin. See notes 16, 20, 27 and 30 *infra* for cases cited in those jurisdictions.

[3] "Inflation" will be used in this Comment to refer generally to the decreased purchasing power of money. A more technical definition describes inflation as "a substantial rise of prices caused by an undue expansion in paper money or bank credit." THE RANDOM HOUSE DICTIONARY OF THE ENGLISH LANGUAGE 730 (1966).

[4] Productivity factors encompass all gains, including increased labor productivity, age, experience, education and inflation, that combine to constitute wage gains over the course of a lifetime. See note 24 *infra* for a brief discussion of wage gains.

[5] [Traditionally] [t]he goal of such an award is to give the plaintiff the amount which, if invested in reasonably safe investments, will return the amount of future loss at the appropriate time. Thus, the dollar amount awarded currently will be less than the future dollar amount. The "reduction to present worth" requires application of an assumed rate of interest, sometimes called the "discount rate," in order to determine the present value of dollars due in the future. The higher the discount rate used by the court, the lower will be the amount of dollars awarded presently to compensate for any given future loss.

Annot., 21 A.L.R. 4th 21, 48 (1983). *See, e.g.*, Chesapeake & O.R.R. v. Kelley, 241 U.S. 485 (1916). *See generally* 22 AM. JUR.2D *Damages* § 96 (1965).

[6] *See, e.g.*, Beaulieu v. Elliot, 434 P.2d 665 (Alaska 1969). The Alaska Supreme Court was first to utilize this method to account for inflation. The court reasoned that it would be proper to consider the effect of anticipated inflation on awards for lost future earnings by not reducing the award to present value, since the discount rate would be entirely offset by the anticipated rate of inflation. *See id.* at 671.

court acknowledged that future damage awards given in one "lump sum" are "likely to suffer the erosion of inflation."[7] Explaining its action, the court stated:

> We adopt the reasoning that the relationship of interest rates and rates of inflation are "self-adjusting" and it is unnecessary to concern the jury with either. Because the two totally offset each other, the jury may make a fair and reasonable award in present worth without introduction of evidence or instruction. The injection of such matters in the trial is not prejudicial but irrelevant and non-essential; all however within the discretion of the court.[8]

The United States Supreme Court has long held the legal and economic principle underlying assessment of damages to be full compensation for the injured party.[9] This Comment considers whether the "total offset" method fully and fairly compensates an injured party. Even though the court of appeals moved in the right direction, the court traded accuracy for efficiency, and in the process failed to clarify a predictable formula. Given the United States Supreme Court's historical objective in awarding damages, further refinement of Kentucky's formula for calculating damages is in order.[10]

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[7] Paducah Area Pub. Library v. Terry, 655 S.W.2d at 25.

[8] *Id.* The court was influenced by what it perceived as the expanding recognition of the "total offset" method. *Id.* at 26.

[9] *E.g.*, Bussy v. Donaldson, 4 U.S. (4 Dall.) 206 (1800). Under Kentucky law, there is no difference in computation of earnings lost, whether due to wrongful death or to personal injury. Paducah Area Pub. Library v. Terry, 655 S.W.2d at 23.

[10] In reaffirming the commitment to fully compensate the injured, the United States Supreme Court recently stated:

> [F]uture employment itself, future health, future personal expenses, future interest rates and future inflation are also matters of estimate and prediction. Any one of these issues might provide the basis for protracted expert testimony and debate. But the practical wisdom of the trial bar and the trial bench has developed effective methods of presenting the essential elements of an expert calculation in a form that is understandable by juries that are increasingly familiar with the complexities of modern life. We therefore reject the notion that the introduction of evidence describing a decedent's estimated after-tax earnings is too speculative or complex for a jury.

Norfolk & W.R.R. v. Leipelt, 444 U.S. 490, 496 (1980) (dictum).

I. Background

In calculating damages, courts are concerned with three policies: accuracy, efficiency and predictability.[11] In general, when considering the effects of inflation and other productivity factors on damage awards, courts have taken three basic approaches: (1) the traditional approach, (2) the middle ground approach, and (3) the evidentiary approach.[12]

A. *The Traditional Approach*

Courts following the traditional approach, although discounting awards to present value, refuse to consider inflation or other productivity factors because they consider these too speculative.[13] This position is somewhat inconsistent, since discounting to present value "is an economic and mathematical refinement . . . [even] . . . more minute, more fictional and speculative, than an allowance for inflation."[14] Although this approach achieves predictability by eliminating some variables and efficiency by limiting evidence admitted, the approach's basic assumptions are questionable.[15]

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[11] *See* Freeport Sulphur Co. v. Steamship Hermosa, 526 F.2d 300, 308-12 (5th Cir. 1976) (Wisdom, J., concurring). *See generally* Note, *Future Inflation, Prospective Damages and the Circuit Courts*, 63 Va. L. Rev. 105 (1977) (discussing the relationship of the three policy considerations).

[12] *See generally* Note, *supra* note 11, at 125; Note, *Considering Inflation in Calculating Lost Earnings*, 18 Wash. L. Rev. 499, 502-09 (1979).

Another commentator has outlined four basic approaches, although his analysis of productivity factors is restricted to the scope and admissibility of an expert's predictions of inflation. *See* Note, *Admissibility of Expert Economic Testimony on Future Inflationary Trends*, 1976 Wash. U.L.Q. 135. This writer's four approaches are as follows:

> [The court] can (1) allow economic experts to present projections, subject to careful jury instruction concerning their probative value; (2) allow the jury to consider inflation based on its own knowledge or on general information supplied by an economist . . .; (3) discard the requirement that judgments be reduced to present worth; or (4) shift the emphasis of the controversy to methods of computing present worth that provide an "inflation-proof" discount rate.

Id. at 146-47.

[13] *See, e.g.*, Williams v. United States, 435 F.2d 804 (1st Cir. 1970). *But cf.* Crabtree v. St. Louis S.F.R.R., 411 N.E.2d 19 (Ill. App. Ct. 1980) (upholding counsel's argument to jury requesting consideration of inflation).

[14] 1 S. Speiser, Recovery For Wrongful Death 2d § 8:9, at 728 (1975).

[15] Courts using this approach assume that inflation is neither persistent nor pre-

B. *The Middle Ground Approach*

The middle ground approach recognizes that future inflation and wage gains have an effect on damage awards, but this method fails to provide a mechanism for the precise assessment of damages.[16] Often, judges simply take judicial notice of inflation when reviewing damage awards for excessiveness.[17] Courts applying this approach only allow juries to use their common knowledge of inflation in reaching a verdict because of a fear that experts might exert undue influence on a jury's decision.[18] While efficient, this approach lacks both accuracy and predictability because the factfinder is allowed to speculate on complicated economic variables without the aid of experts.

C. *The Evidentiary Approach*

The evidentiary approach, in its several variations, allows the use of expert testimony and attempts to reconcile the tension between accuracy and efficiency. The evidentiary approach can be broken down into three separate methods: (1)

dictable. *See, e.g.*, Williams v. United States, 435 F.2d at 804.

[16] *See, e.g.*, Morvant v. Construction Aggregates, 570 F.2d 626 (6th Cir. 1978) (jury allowed to consider inflation but no expert testimony on the subject admitted), *cert. denied*, 439 U.S. 801 (1979); Bach v. Penn Cent. Transp. Co., 502 F.2d 1117 (6th Cir. 1978) (jury allowed to consider future inflation generally so long as testimony avoided specific rates projected into the future); Willmore v. Hertz Corp., 437 F.2d 357 (6th Cir. 1971) (applied Michigan law to uphold jury instruction that members could consider inflation even though no testimony had been heard); Richmond Gas Corp. v. Reeves, 302 N.E.2d 795 (Ind. Ct. App. 1973) (consideration of general inflationary factors within the discretion of the court); Bell Aerospace Corp. v. Anderson, 478 S.W.2d 191 (Tex. Civ. App. 1972) (elements of wage increases and inflation considered generally before awarding damages). *See also* Deweese v. United States, 576 F.2d 802 (10th Cir. 1978) (error for trial court to refuse to consider inflationary trends); Wright v. United States, 507 F. Supp. 147 (E.D. La. 1981) (applied a six percent inflation factor without expert testimony).

[17] This is apparently the approach Kentucky courts have taken in the past. "On appeal, the appellate court has considered excessiveness with an eye on the interest earning capacity of the award as well as the probable decrease (future inflation) in purchasing power of the award." Paducah Area Pub. Library v. Terry, 655 S.W.2d 19, 25 (Ky. Ct. App. 1983) (citing Western Ky. Coal Co. v. Shoulders' Adm'r., 28 S.W.2d 479 (Ky. 1930)).

[18] *See, e.g.*, Bach v. Penn Cent. Transp. Co., 502 F.2d at 1122 (expert testimony projecting to the year 2002 was too speculative).

the "offset present value" method, (2) the independent incorporation method, and (3) the "total offset" method[19] used by the court in *Terry*.[20]

1. *The "Offset Present Value" Method*

This method is a simple calculation, limited to compensation for the effects of inflation on the award for future earnings.[21] In *Feldman v. Allegheny Airlines, Inc.*,[22] the court calculated an "inflation adjusted" discount rate by subtracting the average yearly price increase over the past eighteen years (2.87%) from the average yearly yield from deposits in mutual savings banks (4.14%), arriving at an approximate "inflation adjusted" discount rate (1.5%).[23] After allowing extensive testimony detailing the decedent's grades and employment history in order to determine productivity gains that she might have enjoyed over her lifetime,[24] the court discounted the jury's award by 1.5%.[25] Critics of this method question the wisdom of projecting future inflation and interest rates using

[19] *See* Note, *Future Inflation as a Factor in the Determination of Damages*, 12 U. TOL. L. REV. 369, 383-89 (1981) (discussion of these three methods).

[20] *See* Paducah Area Pub. Library v. Terry, 655 S.W.2d at 25.

[21] Note, *supra* note 19, at 385.

[22] 382 F. Supp. 1271 (D. Conn. 1974), *aff'd in part, rev'd in part on other grounds*, 524 F.2d 384 (1st Cir. 1979). *See also* Doca Mercante v. Marina Nicaraguense, S.A., 634 F.2d 30 (2d Cir.) (inflation rate reduces discount rate to two percent rate), *cert. denied*, 451 U.S. 971 (1980); Espana v. United States, 616 F.2d 41 (2d Cir. 1980) (inflation rate reduces discount rate to five percent); Davis v. New Orleans Public Belt R.R., 375 So.2d 395 (La. Ct. App. 1979) (three percent inflation factor and three percent wage increase factor added to award after reduction to present value); Busch v. Busch Const., Inc., 262 N.W.2d 377 (Minn. 1977) (expert testimony permitted to adjust discount figure for inflation).

[23] 382 F. Supp. at 1293. The actual figure arrived at was 1.27% but the court rounded the figure upward to 1.5%. *Id.*

[24] A common mistake made by courts is failing to distinguish inflation from other productivity factors which might influence overall wage gains. Future earning capacity may increase even in the absence of inflation, as at least four factors contribute to an increase in wages over the life of a worker: (1) education level, (2) age and maturity, (3) increases in worker productivity due to experience and mechanization, and (4) inflation. If an award is to compensate fully, then it must be responsive to each of these variables. Henderson, *The Consideration of Increased Productivity and the Discounting of Future Earnings to Present Value*, 20 S.D.L. REV. 307, 312 (1975).

[25] 382 F. Supp. at 1283-87.

historical data to estimate potential changes.[26]

2. *The "Independent Incorporation" Method*[27]

While perhaps the most accurate, the "independent incorporation" method is also time consuming and complicated. By increasing each year's estimated earnings, including wage increases due to productivity gains, by the compounded rate of inflation as set by competent expert testimony, the court arrives at "inflation adjusted" earnings which are then discounted to present value by a discount rate determined by expert testimony.[28] The obvious weakness of this position is that

[26] See note 97 *infra* and accompanying text discussing attempts to project inflation.

[27] This approach has been adopted by a number of federal and state courts. *See, e.g.*, Taenzler v. Burlington Northern, 608 F.2d 796 (8th Cir. 1979) (utilized "limited" expert testimony); Drayton v. Jiffee Chem. Corp., 591 F.2d 352 (6th Cir. 1978) (applying Ohio law, expert testimony utilized); Steckler v. United States, 549 F.2d 1372 (10th Cir. 1977) ("total offset" method rejected in favor of general evidentiary approach); Johnson v. United States, 510 F. Supp. 1039 (D. Mont. 1981) (future wage increases considered with help of expert testimony); Hardin v. United States, 485 F. Supp. 380 (S.D. Ga. 1980) (applying Georgia law, expert testimony allowed); Mullins v. Seals, 416 F. Supp. 1098 (W.D. Va. 1976) (applying Virginia law, allowed expert testimony on increased productivity); District of Columbia v. Barriteau, 399 A.2d 563 (D.C. 1979) (allowed evidence of inflation within reasonable limits); Seaboard Coast Line Rail Co. v. Garrison, 336 So. 2d 423 (Fla. Dist. Ct. App. 1976) (mere fact that the future rate of inflation is uncertain is not sufficient to exclude expert testimony); Lumber Terminals, Inc. v. Nowakowski, 373 A.2d 282 (Md. 1977) (expert testimony utilized); Ossenfort v. Associated Milk Producers, Inc., 254 N.W.2d 672 (Minn. 1977) (expert testimony allowed to help jury calculate discount rate and inflation rate); Ott v. Frank, 277 N.W.2d 251 (Neb. 1979) (expert testimony allowed as to projected increase in wages and projected increase in tax shelters); Nelson v. State, 431 N.Y.S.2d 955 (1980) (reasonably certain calculations required); Plourd v. Southern Pac. Transp. Co., 513 P.2d 1140 (Or. 1973) (future wage gains considered); Markham v. Cross Transp., Inc., 376 A.2d 1359 (R.I. 1977) (wage growth considered by trier of fact); Cords v. Anderson, 259 N.W.2d 672 (Wis. 1977) (error for courts to refuse expert testimony on inflation).

[28] In United States v. English, 521 F.2d 63 (9th Cir. 1975), the court of appeals accepted the calculations of the district court where "inflation adjusted" earnings (or "lost gross earnings" as the court in *English* described them) were calculated using a base income figure of $21,800, which was the decedent's earnings for 1970. By applying a projection factor of 7.5% annual increase over the estimated productive life of the decedent (in this case seven years) the district court arrived at $169,000 for adjusted earnings. The 7.5% projected annual increase used to compute an estimate of the decedent's lost gross earnings was based on the earnings growth history of persons employed in contract construction. This figure not only reflected pay increases due to regular promotions and increased skill but incorporated an inflationary element as well. *Id.* at 71.

The $169,000 was then reduced by $49,000 for personal consumption leaving $120,000 undiscounted net earnings loss. The Ninth Circuit Court of Appeals then instructed the district court to reduce the award to present value using an appropriate discount rate. *Id.* at 76. The circuit court barred the district court from assuming that the discount rate and inflation rate would net to zero, requiring that estimates of inflation and productivity be based on competent evidence and that each award for "inflation adjusted" earnings be reduced to present value. *Id.* at 75.

inflation rates and interest rates must remain as projected at trial or the plaintiff may be unjustly compensated.

3. *The "Total Offset" Method*

In *Beaulieu v. Elliot*,[29] the Alaska Supreme Court developed the "total offset" method as a viable alternative to the traditional reduction to present value.[30] Recognizing the fact that inflationary expectations affect interest rates,[31] the Alaska court refused to reduce the plaintiff's award on the theory that over the course of the plaintiff's lifetime, the inflation rate would completely offset the interest rate used to reduce the award to present value.[32] Without the aid of expert testimony, the court assumed that inflation would be roughly equivalent to the discount rate, thereby calculating damages

[29] 434 P.2d 665 (Alaska 1969).

[30] *See id. See also* Draisma v. United States, 492 F. Supp. 1317 (W.D. Mich. 1980) (after expert testimony, the court found inflation rate and discount rate matched); Schnebly v. Baker, 217 N.W.2d 708 (Iowa 1974) (expert testimony proved discount and inflation rates offset one another); Resner v. North R.R., 505 P.2d 86 (Mont. 1973) (jury calculated both five percent wage growth rate and five percent discount rate); Kaczkowski v. Bolubasz, 421 A.2d 1027 (Pa. 1980) (productivity gains calculated separately by expert testimony and offset method used to account solely for inflation).

[31] Irving Fisher's work on the effect of inflationary expectations on interest rates is the basis of the "offset method." Formuzis & O'Donnell, *Inflation and the Valuation of Future Economic Losses*, 38 MONT. L. REV. 297, 300 (1977). Fischer noted that inflation and interest rates are interrelated. When people expect prices to rise, they are less likely to save money, electing instead to spend while prices are lower, which causes capital market supply funds to dwindle. This, in turn, causes interest rates to rise as supply lessens. The higher the inflation, the higher the interest rates, and vice versa. *See* I. FISHER, THE THEORY OF INTEREST (1930).

[32] 434 P.2d at 671. *See* Carlson, *Economic Analysis v. Courtroom Controversy, the Present Value of Future Earnings*, 62 A.B.A. J. 628 (1976) (analysis of the rationale behind the "total offset" method). *But see* Coyne, *Present Value of Future Earnings: A Sensible Alternative to Simplistic Methodologies*, 49 INS. COUNS. J. 25 (1982).

simply by multiplying base earnings[33] by the number of productive years the deceased would have enjoyed.[34] The *Beaulieu* court refused to consider productivity increases.[35]

II. RECENT COURT DECISIONS APPLYING THE "TOTAL OFFSET" METHOD

A. Paducah Area Public Library v. Terry[36]

In *Terry*, the plaintiff sustained permanent injury when the vehicle in which she was a passenger was struck head-on by a vehicle owned and operated by the Paducah Area Public Library.[37] At trial, the only issue for the jury was the amount of damages.[38] The jury returned a verdict of $983,456.57.[39] More than half the verdict was compensation for physical pain and suffering.[40] The trial judge refused to permit evidence of present worth or to instruct the jury to reduce the award to present worth.[41] On appeal,[42] the Kentucky Court of Appeals upheld the judge's decision, citing as authority the "total offset" method outlined in *Beaulieu*.[43]

Unless the "total offset" method is carefully applied, unjust awards result. Analysis of other courts' use of the "total offset" method reveals how the court in *Terry* might have more accurately utilized the Alaska court's method.

B. *Pennsylvania's Adoption of the Total Offset Method in* Kaczkowski v. Bolubasz[44]

The Pennsylvania Supreme Court applied the "total offset" method in *Kaczkowski*, relying on the method in a way that reflected a consideration of all factors impinging upon future wage increases.[45] The court was aware that "[t]he orderly development of the law must be responsive to new conditions and to the persuasion of superior reasoning," and embarked on an analysis of statistical and economic evidence to substantiate acceptance of inflation and increased productivity as factors in the calculation of lost future earnings.[46] After considering the general approaches taken by other courts, the *Kaczkowski* court concluded that the evidentiary method was the best method to compute lost future earnings because it viewed expert testimony as essential to accurate economic forecasting.[47] Using a hybrid approach, the court combined

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[33] Base earnings simply means annual salary at the time of death or injury.

[34] 434 P.2d at 670-71.

[35] *Id.* at 672. One commentator pointed out the inconsistencies of *Beaulieu*:

> The *Beaulieu* court applied a somewhat circular logic in defending the decision to refuse productivity increases as well as refusing to discount the award to present value. It held that failure to discount an award would offset any loss of potential wage increases the plaintiff might have accrued. The court then stated, however: "Thus if there is any fear that failure to reduce the award will give the plaintiff more than he is entitled to . . . such fear is obviated by the fact that the award may well be deficient in that it does not take into account probable wage increases."

Note, *The Adjustment of Awards for Lost Future Earning Capacity to Compensate for Inflation and Increased Productivity*: Kaczkowski v. Bolubasz, 7 U. DAYTON L. REV. 139, 150 n.77 (1981) (citing Beaulieu v. Elliot, 434 P.2d at 672). Likewise, the *Beaulieu* approach was recently criticized by the Fifth Circuit.

> Although we find it imprudent to adopt the Alaska Rule, because it is fraught with the same inflexibility that *Penrod* exhibited, we approve the use of any of the methods outlined for calculating future wage losses that results in fairness to plaintiffs and defendants. We see no reason to make the economic judgment . . . that the rate of future inflation will be equivalent to future interest rates.

Culver v. Slater Boat Co., 688 F.2d 280, 307 (5th Cir. 1982). The court, apparently approved the "offset present value" method outlined in Feldman v. Allegheny Airlines, Inc., 382 F. Supp. at 1271, while reserving the right to use other methods as well.

[36] 655 S.W.2d 19 (Ky. Ct. App. 1983).

[37] *Id.* at 21.

[38] Plaintiff was granted a directed verdict on the issue of liability. *Id.*

[39] *Id.* at 22.

[40] *Id.* Awards for pain and suffering are not reduced to present value in Kentucky. *See, e.g.*, Louisville & N.R.R. v. Gayle, 263 S.W. 763 (Ky. 1924).

[41] 655 S.W.2d at 24.

[42] Defendants raised several additional issues on appeal, including failure to instruct the jury on tax impact.

[43] 655 S.W.2d at 26. See text accompanying notes 29-35 *supra* for a discussion of the *Beaulieu* approach to inflation.

[44] 421 A.2d 1027 (Pa. 1980).

[45] *See id.* at 1037-38. Pennsylvania now applies the "total offset" method as a matter of law. Thus, all Pennsylvania courts must utilize the method to compensate for inflation. *Id.* at 1038-39.

[46] *See id.* at 1032-34 (quoting Griffith v. United Air Lines, 203 A.2d 796 (Pa. 1964)). The new conditions referred to by the court were related to a change in opinion regarding the ability to define and predict inflation and productivity. *Id.* at 1032.

[47] *See id.* at 1035. The court in *Kaczkowski* specifically rejected the middle ground approach as inaccurate and unpredictable. *Id.* at 1034-35.

Feldman's[48] allowance of productivity gains (based on expert testimony) with *Beaulieu*'s[49] use of the "total offset" method to compensate for inflation.[50]

Kaczkowski is instructive because the case shows how to account realistically for the entire range of productivity gains in determining lost future earnings. The Pennsylvania court rejected the rationale relied upon in *Beaulieu* that wage gains are comprised solely of inflationary factors.[51] If the goal is full compensation, then the court has a duty to insure that the plaintiff is not undercompensated because of outdated assumptions about wage increases.[52] Although the Kentucky Court of Appeals moved in the right direction by disallowing reduction to present value,[53] it may have done so without adequately accounting for all the variables that constitute future gains in earnings, including educational attainment prior to entry into the labor market, the influence of age on lifetime

[48] Feldman v. Allegheny Airlines, Inc., 382 F. Supp. 1271 (D. Conn. 1974), *aff'd in part, rev'd in part on other grounds*, 524 F.2d 384 (1st Cir. 1975). See text accompanying notes 22-26 *supra* for a discussion of the *Feldman* approach to productivity factors.

[49] Beaulieu v. Elliot, 434 P.2d 665 (Alaska 1969). See text accompanying notes 30-35 *supra* for a discussion of the *Beaulieu* application of the "total offset" method to account for inflation.

[50] *See* 421 A.2d at 1036 (citing Feldman v. Allegheny Airlines, Inc., 382 F. Supp. at 1271; Beaulieu v. Elliot, 434 P.2d at 665). The Pennsylvania court noted that the *Beaulieu* court's refusal to consider merit-based increases discriminated against persons whose salaries depend on their skill, experience and value to their employer. *Id.* at 1037.

[51] *See id.* The Kentucky Court of Appeals in *Terry* apparently relied on the *Beaulieu* rationale. However, it is unclear from the *Terry* opinion what kind of expert testimony was allowed at trial concerning the injured child's diminished future earning power, since that issue was not considered on appeal. *See* Paducah Area Pub. Library v. Terry, 655 S.W.2d at 23.

[52] Focusing solely on inflation is unrealistic in view of the fact that money wages have steadily increased for the last several decades, along with productivity and price levels. Between 1947 and 1973, the compound rate of interest in the consumer price index was 2.8% per annum, while the index of hourly construction earnings rose by 5.6% per annum. The index of average hourly earnings in manufacturing increased at a compound rate of five percent. Consequently, the major cause in the rise of money earnings is not inflation, but factors associated with increases in productivity such as mechanization, job experience, merit increases and maturity in general. *See* Henderson, *supra* note 24, at 314-23. *See also* UNITED STATES DEPT. OF LABOR, BUREAU OF LABOR STATISTICS, HANDBOOK OF LABOR STATISTICS 175 (1973) (showing increases in output per man-hour and increases in compensation from 1947 to 1972).

[53] *See* 655 S.W.2d at 25.

earnings, and the significance of productivity and growth.[54]

C. *Alaska's Modification of the* Beaulieu *Approach*

Apparently recognizing the wisdom of *Kaczkowski*, Alaska recently modified its approach to wage increases. In *State v. Harris*,[55] the Alaska Supreme Court reaffirmed the *Beaulieu* "total offset" approach to inflation,[56] but limited the *Beaulieu* rationale to a refusal to recognize *speculative* productivity gains (as compared with specific productivity gains).[57] If increases are reasonably certain and not lacking in specificity, then such evidence is admissible.[58] The *Harris* opinion is an example of a court applying the "total offset" method, while also being careful to distinguish between inflation and other productivity factors (not attributable to inflation) that combine to constitute lost future earnings.[59] More importantly, the Alaska court indicated a willingness to strive for accuracy despite the inconvenience to judge and jury resulting from the introduction of expert testimony on predictable productivity factors not attributable to inflation.[60] Such a

[54] *See* Henderson, *supra* note 24, at 312.

[55] 662 P.2d 946 (Alaska 1983).

[56] *See id.* at 948 (citing Beaulieu v. Elliot, 434 P.2d 665 (Alaska 1969)). See notes 30-35 *supra* and accompanying text for a discussion of the *Beaulieu* application of the "total offset" method to account for inflation.

[57] *See* 662 P.2d at 947 (citing Beaulieu v. Elliot, 434 P.2d at 668). See note 35 *supra* and accompanying text for a discussion of the *Beaulieu* approach to productivity factors.

[58] 662 P.2d at 948. The Alaska method is now a restricted version of the Pennsylvania method. The Pennsylvania method allows expert testimony regarding speculative as well as automatic productivity gains. *See* Kaczkowski v. Bolubasz, 421 A.2d at 1037. The Alaska method restricts this expert testimony to a "consideration of automatic step increases keyed to length of service which are by their very nature certain and predictable." 662 P.2d at 947.

[59] *See* 662 P.2d at 947-48.

[60] *Cf. id.* at 948. *But cf.* Paducah Area Pub. Library v. Terry, 655 S.W.2d at 19, where the Kentucky court seems overly concerned with the efficiency of the "total offset" method without a similar commitment to accuracy:

> Much can be said for the rule of the trial judge, and much may be said against it, but suffice it to say that such a rule goes far to eliminate the contest between litigants who have the resources to marshall mountains of expert testimony relative to money, its worth and the nebulous art of economic forecasting, all of which encumber the trial proceedings and confuse the deliberation of jurors.

careful delineation of factors comprising the total verdict is absent from the Kentucky Court of Appeals' decision in *Terry*.

D. *Kentucky's Unclear Application of the "Total Offset" Method*

Terry presents a question concerning how Kentucky courts are to apply the "total offset" method. Are entucky courts to follow the *Beaulieu* approach, looing only at inflation to the exclusion of all other relevant factors constituting wage gains, or should courts follow the *Harris* approach and consider other relevant wage gain factors? Considering the painstaking detail of recent Pennsylvania and Alaska decisions, Kentucky courts should also have guidelines for applying the "total offset" method. As recent case law makes clear, the "total offset" method is best applied not as an afterthought[61] but as one component in a carefully controlled judicial proceeding,[62] balancing the desire for accuracy with the need for efficiency and predictability.

In *Terry* the appellee properly proved a diminished earning capacity by expert testimony.[63] However, it is unclear whether such "proper proof" included productivity gains or simply calculated damages in present dollars[64] under the assumption that by not reducing the award to present worth the

Id. at 25.

[61] *See* State v. Harris, 662 P.2d at 946; Kaczkowski v. Bolubasz, 421 A.2d at 1027. *See also* Draisma v. United States, 492 F. Supp. 1317 (W.D. Mich. 1980) (court found, through separate analysis of each figure, that inflation and discount rate were same); Schnebly v. Baker, 217 N.W.2d 708 (Iowa 1974) (court required evidence that inflation rate and discount rate would completely offset each other).

[62] *See, e.g.*, Kaczkowski v. Bolubasz, 421 A.2d at 1037.

[63] *See* 655 S.W.2d at 23. Under Kentucky law, "proper proof" means only that expert testimony be confined to average statistics about future earnings when, as in *Terry*, the injured party has yet to establish a prior work history. *See* Adams v. Davis, 578 S.W.2d 899 (Ky. Ct. App. 1979).

[64] Further ambiguity arises near the end of the opinion with the statement: "The jury may make a fair and reasonable award in present worth without introduction of evidence or instruction [on reduction to present worth or inflation]." 655 S.W.2d at 25. This suggests that all awards are in present dollars and based on present day figures with no allowance for future productivity.

plaintiff would be compensated for future inflation.[65] Failure to adequately explain how the "total offset" method has been applied leaves future Kentucky courts without guidance concerning productivity factors and future plaintiffs without the assurance that they will be fully and fairly compensated for lost or diminished earning power.[66]

III. INADEQUACY OF THE DISCOUNT RATE IN OFFSETTING INFLATION AND OTHER PRODUCTIVITY FACTORS

Even those courts applying the "total offset" method as part of a carefully controlled judicial proceeding must ascertain that the "total offset" method is based on correct assumptions about the relationship of the discount rate to inflation and other productivity factors. Much has been written, both favorable[67] and critical,[68] about the utility of the "total offset" method. Often used by economists and attorneys, this simple method is helpful as long as the projected growth rate in earnings (due to inflation and other productivity factors) is

[65] This is the *Beaulieu* approach to inflation. *See* Beaulieu v. Elliot, 434 P.2d at 665. That approach was modified when the Alaska Supreme Court allowed careful consideration of both inflation and productivity as integral factors in computing lost future earnings. *See* State v. Harris, 662 P.2d at 948.

[66] One author has strongly emphasized the need for guidance in making accurate damage awards:

> Determining loss of prospective earnings requires the use of statistics, mortality annuity tables, and the like. In this area of proof, jurors have proved equal to the task. It is easy to say that a slavish statistical exactitude is not to be sought. On the other hand, in measuring damages caused by the wrongful killing of a husband and father, for example, we must strive to be accurate. Any tools that will aid us in this regard should not be ignored. The jurors are not expected to appreciate all the intricacies of economic theory. But they live with inflation every day of the year, and are well able to grasp the basic concepts involved. We do not want merely a reasonable approximation of the plaintiff's losses. We want as accurate an approximation of that loss as possible!

S. SPEISER, *supra* note 14, at 741.

[67] *See* Carlson, *supra* note 32, at 628; Fleming, *Inflation and Tort Compensation*, 26 AM. JUR. COMP. L. 51 (1978); Franz, *Simplifying Future Lost Earnings*, TRIAL, Aug. 1977, at 34; Sherman, *Projection of Economic Loss: Inflation v. Present Value*, 14 CREIGHTON L. REV. 723 (1981); Note, *supra* note 11, at 105.

[68] *See* S. SPEISER, *supra* note 14, at ¢ 12:2; Coyne, *supra* note 32, at 25; Formuzis & O'Donnell, *Inflation and the Valuation of Future Economic Losses*, 38 MONT. L. REV. 297 (1977); Maher, *Estimating Future Earnings Loss: Misinterpretation and Faulty Logic*, TRIAL, Feb. 1979, at 39.

equal to the discount rate prevailing at the time of the appraisal.[69] However, when applied as a conclusion of law,[70] the court makes a finding of fact that has not been proven at trial.[71]

John Carlson has theorized about the relationship of wage gains to interest rates.[72] Believing they cancel each other out, he argues that just as interest rates tend to rise when inflation climbs are expected, wages tend to rise along with gains in labor and capital productivity.[73] In addition, Carlson notes that wage gains are bid upward by the rate of inflation.[74] Thus, wage gains are comprised of two fundamental components—inflation and productivity—while interest rates are made up of anticipated inflation and the real rate of return on investments.[75] If productivity approximates the real rate of return on investments, then wage gains cancel out interest rates

[69] A leading expert in the field of damage recovery has shown that if earnings grow at seven percent and the prevailing rate of interest on safe investment (discount rate) is seven percent the result is that the compounding effects cancel out. In this situation, present value is simply calculated by multiplying the base earning figure by the number of productive years the individual might have enjoyed. S. SPEISER, *supra* note 14, at 721.

[70] *See* Kaczkowski v. Bolubasz, 421 A.2d 1027, 1038-39 (Pa. 1980) ("we find as a matter of law that future inflation shall be presumed equal to future interest rates with these factors offsetting"). In *Terry*, the court of appeals did not require adoption of the "total offset" method as a conclusion of law; rather, the court left application of this method to the trial court's discretion. Paducah Area Pub. Library v. Terry, 655 S.W.2d 19, 25 (Ky. Ct. App. 1983) ("The injection of such matters in the trial is . . . within the discretion of the trial court.").

[71] In *Terry*, the trial court judge excluded all evidence of an appropriate discount rate because all evidence relative to "future inflation" was also excluded. 655 S.W.2d at 25. This was a blind application of the "total offset" method.

[72] *See* Carlson, *supra* note 32, at 628. Carlson expands the proposition adhered to by the Pennsylvania and Alaska courts that interest rates and inflation rates cancel each other out. He argues that productivity factors, not merely inflation rates, cancel out the discount rate. *See id.* at 628-31.

[73] *See id.* at 630. See also note 31 *supra* for a discussion of the effect of inflationary expectations on interest rates.

[74] *See* Carlson, *supra* note 32, at 630.

[75] Real return on investment is that sum of capital actually produced over and above the rate of inflation. The nominal return on investment contains both a real rate and an inflation figure. This lends further credence to the argument that inflation alone does not totally offset the discount rate. Rather, returns on investment tend to exceed the rate of inflation by an amount equal to the real return on investment. *See id.* at 630. *See generally* I. FISHER, *supra* note 31.

since inflation is a constant.[76] To support his argument, Carlson shows that from 1950 to 1974 *average* increases in compensation per man hour[77] and *average* yields on taxable government bonds were roughly equivalent.[78]

Economist Thomas Coyne has criticized Carlson's analysis by stating: "The approach is appealing in its simplicity but it cannot be supported empirically."[79] Coyne points out that averages only serve a worthwhile purpose where there is no specific data for the case being analyzed.[80] Averages are not helpful in wrongful death or injury cases since they always involve a specific individual.[81]

Another economist, John Maher, also rejects Carlson's measurement of the percentage change in hourly compensation by year-to-year calculations.[82] Maher contends that future earnings changes cannot be estimated from an average of past year-to-year changes because that change might involve a drop in earnings, as well as a rise in the increase of earnings.[83]

[76] Carlson, *supra* note 32, at 630 ("[I]f real returns on investment are at all close to productivity gains to labor, then interest rates reflect the current state of expectations about future wage gains.").

[77] *Id.* Carlson uses *average* "increases in compensation per man hour" even though the U.S. Bureau of Labor Statistics publishes wage increase statistics for no less than eleven different occupational areas, each of which has a different increase in compensation per man hour.

[78] *Id.* One obvious weakness in his calculations is the admitted fact that unanticipated inflation results in much higher wage growth without the accompanying growth in bond rates. Only when inflation has been fully anticipated have bond prices and wage increases been very close together. *Id.*

[79] *See* Coyne, *supra* note 32, at 26. He lists five areas where Carlson's data is inadequate: (1) the 24-year time span, used by Carlson in his calculations, is a relatively short time for many, if not most, wrongful death or injury cases; (2) the time period he uses includes a disproportionately large number of recessionary months; (3) the 1.6% difference in averages of Carlson's two rates is significant when applied in present value analysis over a long period of time (Coyne calculated average annual compensation per man hour at 5.812% and an average bond yield of 4.2512%); (4) high standard deviations for each series of data means large dispersions from the mean in any given year; and (5) the two rates and their accompanying standard deviations cause him to believe the discount rate does not exactly offset projected wage increases for the time span used. "Quite simply, his assumptions cannot be supported by his data." *Id.*

[80] *See id.*

[81] *Id.* at 27.

[82] *See* Maher, *supra* note 68, at 39.

[83] *See id.* at 40. Maher points out that year-to-year percentage changes between

Instead, Maher argues that "[t]he commonly accepted way of estimating future earnings is the fitting of a trend line to the observed data."[84] Using a hypothetical case, Maher compounds the base earnings[85] and then reduces them to present value employing a 2.68 % discount rate (the yield on government securities prevailing in 1952). The result is the amount a "clairvoyant" economist would have reached.[86] As a result, Maher finds that the "cancellation" economist[87] would have undercompensated the plaintiff by 18% on a twenty-five year award.[88] From this, he concludes that "cancellation of the rate of advance in earnings by the discount rate gives estimates that are low and with errors that have usually been substantially larger than those of the economist who separately determines the rate of earnings increase."[89]

IV. ALTERNATIVES

Since the "total offset" method has been seriously attacked as not properly reflecting inflation and productivity increases, a viable alternative is needed. Several alternatives have been outlined above.[90] Others are beyond the scope of this Comment.[91] Some courts choose the "total offset" method

0, 10 and 20 would average out to a 10% change regardless of whether the figures were ascending or descending. *See id.*

[84] *Id.* Maher's trend line reveals three distinct time periods: from 1952 to 1965 the average annual increase was 3.6%; from 1965 to 1971, 5.4%; and from 1971 to 1977, 7.8%. *Id.* at 39.

[85] *See id.* Maher compounds earnings at 3.4% to 1965; at 5.4% to 1971; and 7.8% to 1977.

[86] *Id.* Maher also figures the earnings that a "typical" economist might have estimated by projecting a five percent annual increase in earnings across the board. *See id.*

[87] *Id.* This is Maher's name for Carlson and other economists who advocate that the discount rate cancels the rate of earnings increase.

[88] *Id.* The "typical" economist would have over compensated the plaintiff by 10.6%.

[89] *Id.* at 41.

[90] See notes 72-89 *supra* for a discussion of these alternative methods.

[91] *Compare* Elliget, *The Periodic Payment of Judgments*, 46 INS. COUNSEL J. 130 (1979) *with* Henderson, *Periodic Payments of Bodily Injury Awards*, 66 A.B.A. J. 734 (1980). Both authors are responding to the recent draft of the UNIF. PERIODIC PAYMENT OF JUDGMENT ACT, 14 U.L.A. 20 (Supp. 1983)).

because of a high priority on efficiency.[92] Yet, as one economist states, "[i]f simplification in courtroom presentations is desired, the highest degree achievable may be in getting a stipulated methodology, not an equalization of interest rates."[93]

Rejection of the "total offset" method as a general rule in favor of separate determinations of average annual wage increases and discount rates offers the most accurate, predictable and efficient methodology.[94] Economists Formuzis and O'Donnell have developed such a procedure,[95] which is similar to the offset approach, yet rests on two radically different, more realistic assumptions. Those assumptions are: (1) the appropriate discount rate is the average yield on U.S. government securities of up to five years maturity,[96] and (2) the trend in wage changes is 1.4% higher than this discount rate.[97] The authors calculate this 1.4% figure by using regression analysis to statistically establish the differential between wage growth and interest rates.[98] Using this analysis, the court

[92] *See, e.g.*, State v. Harris, 662 P.2d 946 (Alaska 1983).

[93] *See* Coyne, *supra* note 32, at 29.

[94] See text accompanying note 11 *supra* for a discussion of the policy objectives in calculating damages.

[95] *See* Formuzis & O'Donnell, *supra* note 68, at 297. The approach they have utilized has been named "regression analysis." *See id.* at 302.

[96] *Id.* Shorter term securities necessitate the periodic sale of maturing securities. This protects the plaintiff or survivors from the ravages of inflation to the extent that inflation and higher yields are correlated. *Id.*

[97] *Id.* Formuzis and O'Donnell believe that "forecasting inflation by projecting the historical rate of inflation is unacceptable because it is unreliable and speculative." *Id.* at 299. They also reject Carlson's idea that wage growth and interest rates change equally in the presence of inflation. Formuzis and O'Donnell suggest that "the rate of wage growth and the rate of interest do not change equally in the presence of inflation. They do, however, change in a predictable fashion." *Id.*

[98] *See id.* Accepting the "Fisher principal" that wage increases and interest rates co-vary, the authors argue that wage growth is consistently greater than interest rates on short term investments by 1.4%. *Id.* at 300, 302. The difference is due primarily to the relationship between the rate of increase in labor productivity and the rate of return on capital (i.e., productivity of capital) respectively. *Id.* at 300. For further support of this idea, see Coyne, *supra* note 32, at 26, where the author points out that Carlson, in his calculations, found a 1.6% difference in averages between the two rates. The variance between Carlson's number (1.6%) and Formuzis and O'Donnell's (1.4%) can be accounted for by noting that Carlson uses yearly averages while Formuzis and O'Donnell use three-year moving averages.

simply calculates the rate of discount[99] and then sets the rate of wage growth at 1.4% above the discount rate.[100] This calculation corrects the downward bias of the "total offset" method noted above.[101]

By correcting for the downward bias, awards are more accurate. Judges and juries are also given an efficient way in which to compensate for all productivity factors without extensive expert testimony.[102] Perhaps most importantly,

[99] Formuzis & O'Donnell, *supra* note 31, at 305 ("The rate of the discount should be calculated from riskless government securities with an average maturity of 3 years.").

[100] For example, assume that the decedent in a wrongful death action is determined to have a $40,000 per year earning capacity with a three year estimated life span. The discount rate, based on the rate of government securities, is seven percent. Under the "total offset" method, wage growth is presumed to equal the discount rate and, in effect, cancel each other out. The damage award would be calculated as follows:

$$\$40{,}000 \times 3 \text{ years} = \$120{,}000$$

In comparison, under the Formuzis and O'Donnell approach, wage growth would be set at 1.4% above the discount rate. The damage award would be calculated for each year according to the following formula:

$$\$40{,}000 \times \begin{matrix}\text{Future value}\\ \text{factor for that}\\ \text{year at } 8.4\%\end{matrix} \times \begin{matrix}\text{Present value}\\ \text{factor for that}\\ \text{year at } 7.0\%\end{matrix} = \begin{matrix}\text{Damages awarded}\\ \text{for that year}\end{matrix}$$

This formula yields the following result:

$$\text{year 1 } \$40{,}000 \times (1.084)^1 \times \frac{1}{(1.07)^1} = \$\ 41{,}550$$

$$\text{year 2 } \$40{,}000 \times (1.084)^2 \times \frac{1}{(1.07)^2} = 41{,}031$$

$$\text{year 3 } \$40{,}000 \times (1.084)^1 \times \frac{1}{(1.07)^1} = 40{,}541$$

$$\$123{,}122$$

Over the three year span, the Formuzis and O'Donnell approach gives the plaintiff $3,122 or 2.6% more than the award determined under the "total offset" method.

[101] See text accompanying notes 88-89 *supra* for a discussion of the downward bias of the "total offset" method.

[102] It would be possible for a court to increase accuracy by using regression analysis to calculate a specific differential for a particular occupation using the statistics published by the United States Department of Labor, Bureau of Labor Statistics. However, in most cases, the 1.4% differential is sufficient to fairly compensate the plaintiff. See notes 52 & 77 *supra* for discussions of labor statistics and occupational wage increases.

Formuzis and O'Donnell provide a predictable methodology which removes speculative variables from projecting inflation and other productivity factors, leading to more settlements and fewer court battles.

CONCLUSION

In the early 1970s, inflation came to be an accepted part of damage award verdicts for lost future earnings. More recently, courts have begun accounting for inflation and productivity factors when estimating future wages. Yet, deciding how to include these somewhat unpredictable variables in a manner which is accurate and predictable while still efficient has been a challenge for the courts. Kentucky's application of the "total offset" method was a response to that challenge. The Kentucky Court of Appeals succeeded in interjecting new considerations into the damage award process; however, the court failed to adequately set out all the relevant factors in the "total offset" approach. Recent applications of the offset method by other courts more experienced in its use show that full and fair compensation requires Kentucky to consider other productivity factors along with inflation in calculating awards for lost future earnings.

Accepting the premise of the "total offset" approach—that awards can be efficient and accurate—another technique using regression analysis is posited. By setting the wage increases at 1.4% higher than the discount rate, courts can simultaneously correct for the downward bias of the cancellation method while also accounting for both inflation and productivity gains—an efficient, accurate calculation that removes from the jury the often unpredictable task of calculating future wage earnings by expert testimony.

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