Measuring Economic Loss

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Introduction:

In a very real sense, I am embarrassed to be here today. If the economics profession did not contain such an abundance of fools, charlatans and pretenders, there would be no need to educate the legal profession on what should be obvious computations. Sure, there are disagreements between economists on some of the issues encountered in measuring economic loss due to injury or death but these are not the topics on which I have been asked to speak today and a meaningful presentation of those topics would be beyond the comprehension of a non-economist audience. The heart of my presentation to you today, however, is obvious and there should be little disagreement in the profession over these points. I don't wish to speculate as to why there is.

Let's get the areas of honest disagreement out of the way first:

Real Interest Rates - The crux of the disagreement here is the extent to which the past can be used to predict the future. Depending on the historic period chosen, real interest rates can differ widely. The type of bond and measure of inflation used also have a big impact. Further, a recent Department of Labor study shows that inflation rates have a measurement bias of .6%. Bottomline, the real rate is probably not greater than 4% or less than 1%, but there is a lot of room for argument between those extremes.

Wage Growth - Railroad workers have historically been overpaid. This almost bankrupted the industry and inflation-adjusted wages have been stagnant for years. Productivity has been increasing as new crew consist agreements have taken effect however, and since wages follow productivity, real wages may increase at some point in the future. When this will happen and the extent are highly controversial. Falling real wages in the long-run or increases of much more than one percent per year fall outside the realm of reason.

These difference between these two factors is the net discount rate and the level of that rate can make a big difference in the present value of economic loss, especially in a young worker. But, young workers can rarely demonstrate that they would have continued to be employed by the railroad. In my experience, at least, it has been middle aged and older workers which make up the majority of cases. For these situations, the net discount rate is not a critical factor affecting loss.

The areas of divergence which cause estimates of loss to vary by 100% or more between experts in FELA cases are largely matters of fact, not opinion. It never ceases to amaze me that the courts so routinely allow grotesque permutations of reality to be presented to juries in the guise of "opportunity cost" or some other incantation of econobabble. The true economic problem is a simple one: what award of money today is necessary to put the plaintiff in the same economic situation that he would have been but for the accident.

This is neither rocket science nor an abstract economic question, it is a relatively straight-forward matter of applying the tools of economic and financial analysis. The problem is not trivial and requires thought and care to solve properly but it does not require much theorizing or opining.

An Example:

Probably the best way to explain the difference between the right and wrong way to compute damages in an FELA case is to present an example which parodies the "plaintiff's economist in red" and then to correct the report element by element. This approach illustrates the simple, common sense nature of the right way to do the calculations as well as showing what elements make a big difference.

For our illustration we will use a fairly typical case. Joe Jones was a conductor for the Big Track Railroad prior to wrenching his back throwing a switch which was stuck allegedly due to poor maintenance. After six unsuccessful surgeries to his back, Joe can no longer work as a conductor and, at best, can hold a sedentary job. Joe is 45 years old and has twenty years of service. At the time of his injury, he was earning $45,000 per year and was secure from layoff. He can now only work as a security guard, earning $4.50 per hour.

The vocational expert, who also spent several weekends studying economics and once walked by the economics section of the public library, estimates loss as $950,437. Computed as the difference between the after-tax wages and benefits of a railroad worker and as a security guard.

Sample Case: Joseph Jones Conductor

Prior to alleged injury
- 45 years old
- 20 years service
- $45,000 pre-tax earnings expected in 1994

Injured December 31, 1993

Likely 1994 Earnings After Injury
- $4.50/hour
- 2,000 hours/year

	Railroad	Alternative
21 Years Wages	$661,500	$170,000
Benefits	330,750 (35%)	14,458 (7.65%)
Worklife Reduction		101,729 (50%)
Disabled Wage Effect		40,916 (40%)
Total Compensation	$992,250	$ 41,813

A well-known economics professor confirmed these calculations but opined that loss should be stated in present value terms. He increased nominal wages by six percent annually and then discounted at the rate on tax free bonds, arriving at an estimate of loss of $918,708.

Base Scenario, Pre-Injury
Loss Estimated by Plantiff's Expert

Year	Year-end Age	After-tax Earnings	Benefits	PV Factor	PV Amount
1994	46	$31,500	$15,750	0.9708	$45,871
1995	47	$33,390	$16,695	0.9150	$45,828
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
2014	66	$101,025	$50,512	0.2970	$45,008
Total:		$1,259,771	$529,885		**$954,204**

Base Scenario, Post- Injury
Loss Estimated by Plaintiff's Expert

Year	Year-end Age	After-tax Earnings	Benefits	PV Factor	PV Amount
1994	46	$1,620	$138	0.9708	$1,706
1995	47	$1,717	$146	0.9150	$1,705
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
2014	66	$5,196	$442	0.2970	$1,674
Total		$64,788	$5,507		**$35,496**

$918,708

The Journey to Reality Begins:

Our example is a parody but does not stray far from economic loss estimates routinely presented in courts of law. Let's begin our journey with a small step, undoing the worklife reduction and disabled wage effects. These are a double count as well as a misuse of studies of the effects of disability. Joe's wages will fall because he can no longer work as a conductor. This does not mean that he will be a less than capable watchman and, furthermore, alternative wages are already computed at the minimum wage -- you can't fall off the floor. Worklife is a similar argument. Joe is going to enter a sedentary occupation and there is no reason that he cannot continue working at that job until normal retirement. The data on disabled worklife reflect the large number of part-time disabled workers. When the examination is restricted to year round full time workers, the difference in worklife between the disabled and able is small and the wage differential shrinks markedly. Education is also a factor in the wage-earning capacity of the disabled; the higher the educational level the smaller the difference.

Adjustment #1, Post-Injury
Eliminate Double-Counting of Disability

Year	Year-end Age	After-tax Earnings	Benefits	PV Factor	PV Amount
1994	46	$8,100	$689	0.9708	$8,532
1995	47	$8,586	$730	0.9150	$8,524
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
2014	66	$25,978	$2,208	0.2970	$8,371
Total:		$323,941	$27,535		**$177,482**

$776,772

Retirement Benefits:

Nobody in the real world expects to receive retirement benefits until they retire yet economists in personal injury cases, including FELA, routinely put the loss in the working years.

The logic for this approach relies on the notion that the benefit accrues during the working years and so the payment by the employer is a reliable proxy for the loss of retirement due to the injury. This presumption is incorrect for a number of reasons:

- With respect to Tier 1, the injured worker will receive a disability payment which will convert to a retirement pension. This payment is fully indexed for inflation so that the only loss the employee will suffer is that his pension may be slightly lower because his inflation-adjusted wage may have increased in the future. This is a very small difference, however, and for very highly paid workers such as engineers, there will be no loss at all in Tier 1.

- Tier 1 and Tier 2 are defined benefit plans not defined contribution plans. While there is a relationship between the amount paid in and the benefit received, it is never a one to one relationship.

- The high level of the employer payment into Tier II is to cover the shortfall in the fund that is related to present retirees. According to the Actuarial Valuation, only about 2% of the employers contribution actually goes to pay for the pensions of current workers. The remainder of the employers payment is to fund current retirees.

- The level of contributions is determined on the basis of funding future retirees and some current workers will die and not recover their (and their employers) taxes, others will live to a ripe old age and recover far more. Putting the loss in the working years overstates loss.

Adjustment #2, Pre-Injury
Recieve Retirement in Retirement Years

Year	Year-end Age	After-tax Earnings	Benefits	PV Factor	PV Amount
1994	46	$31,500	$5,063	0.9708	$35,496
1995	47	$33,390	$5,366	0.9150	$35,462
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
2027	79	$0	$78,246	0.1375	$10,762
Total:		$1,259,771	$1,108,894		**$917,727**

$666,208

Computing actual expected pension benefits and putting them in the retirement years reduces damages by about $110,000, approximately 14%. This should not be an arguable point. As Sam Hixon pointed out in his paper at last years Ritz Carlton meeting, this failure can be used to exclude the plaintiff's economist from testifying on this element of loss. The Missouri Appeals Court in *Charley Adams v. Burlington Northern Railroad,* specifically cited the failure of plaintiff's expert to properly compute lost pension benefits in remanding that case.

The next real world element to invade the plaintiff's experts alternative universe is the fact that employees pay Tier 1 taxes and Tier 2 contributions in the working years in order to be eligible for benefits in retirement. Employees Tier 1 should be subtracted from gross wages both because it must be paid in order to receive future benefits and because as Bob Weatherby pointed out in a *Chronicle* article a few years back, it is a tax and loss in FELA cases is computed on an after-tax basis. As an economist, I am not particularly moved by this point except that if we accept the legislative intent of FELA as being to put the employee back into the same position, we must reduce lost wages by all the offsets caused by that loss except those specifically barred by the collateral source rules. Following the same logic, Tier 2 payments (taxes) should also be deducted.

Adjustment #3, Pre-Injury
Deduct Employee Retirement Contributions

Year	Year-end Age	After-tax Earnings	Benefits	Employee Contribution	PV Factor	PV Amount
1994	46	$32,162	$5,063	($5,648)	0.9708	$30,655
1995	47	$34,091	$5,366	($5,986)	0.9150	$30,656
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
2027	79	$0	$78,246	$0	0.1375	$10,762
Total:		$1,286,226	$1,108,894	($255,859)		**$817,035**

$579,421

The impact of reducing wages by Tier 1 and 2 taxes is to reduce lost benefits by an additional $87,000. It also becomes clear that the railroad retirement system is not as substantial a benefit as it is frequently characterized. In point of fact, on a net benefit basis the railroad system is inferior to the retirement package received by the average worker employed by a medium to large firm.

We have made this point in trial testimony by separating the Tier 1 and 2 cost and benefit streams from the rest of the analysis and showing separately that the payoff on Tier 2 is worth but a little more than the employee's contributions. This point is then reinforced by citing the Actuarial Valuation. It can also be shown that the employee actually benefits with respect to Tier 1 as a result of the injury -- no further taxes will be paid since investment return is not subject to Social Security Tax, yet benefits will fall only slightly.

As we all know, one of the primary differences between the railroad retirement system's Tier 1 and the Social Security System is that the railroad system permits an employee to retire at age 62 with full benefits if time in service requirements are met. We have computed the after-tax incomes for numerous railroaders and have found that they generally are just as well off retired as working. Little wonder then, that the vast majority (perhaps 80%) of railroad workers retire at or before age 62. If we adjust Joe's economic loss to reflect early retirement and also make the correct actuarial adjustments on his probability of living, economic loss drops another $125,000.

Adjustment #4, Pre-Injury
Retire at Age 62

Year	Year-end Age	After-tax Earnings	Benefits	Employee Contribution	PV Factor	PV Amount
1994	46	$32,103	$5,053	($5,637)	0.9708	$30,599
1995	47	$33,899	$5,336	($5,953)	0.9150	$30,454
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
2027	79	$0	$56,425	$0	0.1375	$7,761
Total:		$849,589	$950,746	($149,186)		**$672,953**

$452,467

Includes mortality adjustment, which accounts for approximately half of the difference from prior scenario.

The probability of being alive should not be a controversial adjustment. An injured worker can buy a portfolio of life annuity contracts, indexed for inflation, which provide as reasonable an assurance of income as does working. Given that the market is willing to bear mortality-related risks, it is entirely appropriate for the economist to incorporate these into his analysis. Since these annuities generally have higher yields than treasury securities or tax free bonds, it can be shown that in return for taking a minimal level of risk, the plaintiff can earn a substantially higher level of future income.

Our final set of adjustments, which reduces loss another $110,000 is to reduce the level of future real wage growth from 3% to .5% and to recognize that railroad workers in through freight service like Joe have employee business expenses which reduce their taxable income. Only once in recent memory has our firm examined the tax return of a through freight railroader and not found this deduction. Our experience has been that the level of this deduction is typically $3,500 which reduces loss by about $40,000.

Adjustment #5, Pre-Injury
Other Adjustments (wage growth, expenses)

Year	Year-end Age	After-tax Earnings	Benefits	Employee Contribution	PV Factor	PV Amount
1994	46	$28,959	$5,053	($5,637)	0.9708	$27,547
1995	47	$29,858	$5,210	($5,812)	0.9150	$26,769
•	•	•	•	•	•	•
•	•	•	•	•	•	•
•	•	•	•	•	•	•
2027	79	$0	$53,906	$0	0.1375	$7,414
Total:		$619,769	$876,203	($120,647)		**$540,307**

$343,354

The wage growth issue is more controversial but there are numerous studies by the government and respected private analysts forecasting stagnation in the earnings of the less educated. Recent history confirms this experience. Only by reaching back to the 1960's can the plaintiff's economist find any foundation for real earnings growth levels above about 1%.

Now It's Your Turn:

About a year ago, Sam Hixon described how his firm works aggressively to keep unfounded, speculative economic testimony from being presented in court. The Burlington Northern and the Deacy firm got a decision this summer which restrains the creativity of plaintiffs' economic experts in Missouri.

As a practitioner of the dismal science, I would like to join in that call to the railroad defense bar. If unfounded, pie in the sky damages estimates can be barred, then sound economics will take their place and sanity and reason can be injected into the process. A side benefit is that such a move will unemploy many plaintiff's experts giving them the much needed time to read their jounals and relearn economics. Who knows, maybe they may even start taking seriously the teaching for which they are paid.