Present Value and the Uncertain Future

BAMSL Seminar

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Learning Objectives for Today's Seminar

1. **Summarize case law on economic damages in PI, WD & WT cases.**
2. **Characterize the economist's role in economic damage valuation.**
3. **Describe & illustrate the present value (PV) concept.**
4. **Identify the role of PV in measuring economic damages.**
5. **Describe the impact of economic uncertainty on PV.**
6. **Apply PV to cases and evaluate outcomes.**
7. **State a "litmus test" of your economist's understanding of present value.**

Case Law on Economic Damages

Jones & Laughlin Steel Corp. v. Pfeifer

Supreme Court of United States (1983)

In calculating damages, it is assumed that if the injured party had not been disabled, he would have continued to work, and to receive wages at periodic intervals until retirement, disability, or death. An award for impaired earning capacity is intended to compensate the worker for the diminution in that stream of income.[8] The award could in theory take the form of periodic payments, but in this country it has traditionally taken the form of a lump sum, paid at the conclusion of the litigation.[9] The appropriate lump sum cannot be computed without first examining the stream of income it purports to replace.

The lost stream's length cannot be known with certainty; the worker could have been disabled or even killed in a different, non-work-related accident at any time. The probability that he would still be working at a given date is constantly diminishing. Given the complexity of trying to make an exact calculation, litigants frequently follow the relatively simple course of assuming that the worker would have continued to work up until a specific date certain. In this case, for example, both parties agreed that the petitioner would have continued to work until age 65 (12 1/2 more years) if he had not been injured.

Case Law, Continued

Culver v. Slater Boat Co Europirates International Inc

United States Court of Appeals, 5th Circuit (1983)

In Johnson v. Penrod Drilling Co., 510 F.2d 234 (5th Cir.) (en banc), cert. denied, 423 U.S. 839, 96 S.Ct. 68-69, 46 L.Ed.2d 58 (1975), this court held that juries "should not be instructed to take into account future inflationary or deflationary trends in computing lost earnings ..." Id. at 241. Reviewing that decision in our first en banc consideration of these two cases, we overruled Penrod and held admissible evidence of inflation's probable effect on damage awards. Culver v. Slater Boat Co., 688 F.2d 280 (5th Cir.1982) (en banc) (Culver I). Concluding that the jury should resolve the issue on a case-by-case basis, we disclaimed any intention to establish a "single method" for considering future economic conditions. Id. at 299 n. 23. Instead, we discussed several permissible methods the district courts and parties could use. Id. at 305-06.

While we were considering an application for rehearing in Culver I, the Supreme Court decided Jones & Laughlin Steel Corp. v. Pfeifer, --- U.S. ----, 103 S.Ct. 2541, 76 L.Ed.2d 768 (1983). The Court's opinion in Pfeifer cites Culver I and confirms our holding that the fact-finder should consider inflation in determining an appropriate damage award. The Court's opinion also emphasizes, however, a fundamental point that we did not fully consider in Culver I: that courts must not allow the adjustment for inflation to convert " '[t]he average accident trial ... into a graduate seminar on economic forecasting.' "[1]

Reconsideration of Culver I in light of Pfeifer has convinced us that our failure to identify a single method as the one trial courts should use in adjusting damage awards for inflation, particularly in jury trials, would extend an invitation to litigants to engage in just such a seminar. We, therefore, withdraw the opinion in Culver I insofar as it goes beyond overruling Johnson, and hold that, in the absence of a stipulation by the parties concerning the method to be used, fact-finders shall determine and apply an appropriate below-market discount rate as the sole method to adjust loss-of-future-earnings awards to present value to account for the effect of inflation. While expert testimony and jury instructions must be based on this method, juries may be instructed either to return a general verdict or to answer special interrogatories concerning the computation of damages.

Case Law, Continued

Nesselrode v. Executive Beechcraft, Inc.

Supreme Court of Missouri (1986)

This decision held that Missouri does not require projections of damages to be reduced to present value, but does not preclude defendants from presenting evidence about present value.

Reed v. Boy Scouts of America, Inc.

7th Circuit Court of Appeals (2010)

Held that plaintiff was unable to recover for lost future wages because New Hampshire law requires that "'an award for future damages must be reduced to present value and, given the complexity of the modern economic environment, . . . the reduction must be based upon specific economic evidence and not merely upon personal knowledge that the jury may or may not possess.' Furthermore, 'the plaintiff bears the burden of coming forward with evidence of the proper rate of discounting,' either through the testimony of an *economic expert* or other 'economic data' supported by 'a proper foundation'. Id. At 334-35.

Case Law, Continued

Kuithe v. Gulf Caribe Maritime, Inc.

Alabama Southern District Court (2010)

The defendant challenged the trial court decision on the ground that the report of the plaintiff economic expert's reduction of the plaintiff's lost future earnings to present value did not employ the *below-market discount method* required by Culver v. Slater Boat Co., 722 F.2d 114 (former 5th Cir. 1983) (en banc) ("Culver II"). The court said: "It is clear that the report of the plaintiff's expert does not employ the below-market discount rate method required by Culver II. Instead, it uses a nominal interest rate of 4.5%. However, the expert in his deposition testimony made clear that he utilized an inflation rate of 3.5% in calculating the plaintiff's lost future income and that, had he used the below-market discount method, he would have used the same inflation rate and a below-market discount rate of 1%. He also testified that, had he used the below-market discount rate method, his figures for the present value of lost income would have been exactly the same (because the 3.5% would have been deducted from both the future income stream and the discount rate). The plaintiff thus presented expert evidence of a below-market discount rate and of lost income using that method. The defendant's motion for judgment on partial findings is due to be denied in this respect."

Neview v. D.O.C. Optics Corporation

U.S. Court of Appeals, 6th Circuit (2009)

From the decision: "Defendant requests that the Court exclude the testimony of Plaintiffs' proposed expert economist, Dr. Calvin Hoerneman. While Defendant suggests that his testimony is unnecessary because it addresses an uncomplicated subject, Defendant has not provided any Sixth Circuit authority that expert economic testimony is prejudicial or irrelevant. Moreover, *such expert testimony assists the jury* in understanding damage issues. The Court will deny this request."

Todd v. Delta Queen Steamboat Company

Court of Appeals of Louisiana, 4th Circuit (2009)

In a rehearing, the Court said: "The district court set forth the various reasons why it did not award Mr. Todd damages for future earnings and/or loss of future earning capacity; 1) he did not present an economist in support of his claim; 2) he failed to present adequate evidence to support such an award; and 3) his extrapolation of future wage loss was inaccurate as it failed to take into account tax consequences and use of a discount rate. We do not find that the district court abused its vast discretion in not awarding Mr. Todd damages."

The Economist's Role in Economic Damage Valuation

(in PI, WD, WT Cases)

- Help triers of fact to assess economic damages, when the extent of such damages is not obvious.

- In preparing reports and testimony on economic damages follow the instructions of the court, including the U.S. Supreme Court ruling on Daubert v. Merrell Dow Pharmaceuticals (1993).

- For lump sum awards, determine a sum that represents the present value of economic damages.

- In computing a lump sum use all relevant information on the case and, optionally, data on market conditions and the general economy.

The Present Value Concept

The Present value concept is frequently applied in finance and economics, in order to place a current monetary value on future income. There are various definitions of present value in the literature, including the following ones, listed below with their source and year of publication:

- *The present value of one pound to be received certainly at the end of any assigned term, is such a sum less as, being improved at compound interest during the term, will just amount to one pound.* -- Encyclopedia Brittanica III (1831).

- *The worth of a future stream of returns or costs in terms of their value now. To obtain a present value a discount rate is used to discount these future returns or costs.* -- MIT Dictionary of Modern Economics, 4th edition (1992).

- *Present value of a future payment is that amount which, when invested today at a given interest rate, would result in the given value of the future payment.* -- Introduction to the Economics and Mathematics of Financial Markets (2004).

- *The value today of funds to be received or paid on a future date.* -- The Financial System and the Economy (2006).

- *The current monetary value of a future payment or series of payments; specifically the present sum of money that will equal this when the income that the sum will generate and inflation are taken into account.* -- Oxford English Dictionary, 3rd edition (2010).

Present Value, Continued

Example 1: A 64 year-old woman works, earning $75,000 during the past year, and plans to work 1 more year before retirement. When driving her car she is hit by a delivery truck, and killed. At the time of her death, the interest rate on a 1-year U.S. government bond is 5 percent. Assume that her annual income would have remained the same next year. The amount of money needed today, in order to invest in bonds for 1 year and have $75,000 one year from now, is $75,000/1.05 = $71,428.57. If the woman was married then her spouse might demand this amount from the delivery company, as compensation for economic damages caused by wrongful death.

Example 2: A 63 year-old woman works, earning $75,000 during the past year, and plans to work 2 more years before retirement. When driving her car she is hit by a delivery truck, and killed. At the time of her death, the interest rate on a 1-year U.S. government bond is 5 percent. Assume that her annual income would have remained the same for the next two years, and that the interest rate remains at 5 percent 1 year from now. The amount of money needed today, in order to invest in bonds for 2 years and receive $75,000 one year from now plus another $75,000 two years from now is $75,000/1.05 + $75,000/$(1.05)^2$ = $139,455.78.

Example 3: A 63 year-old woman works, earning $75,000 during the past year, and plans to work 2 more years before retirement. When driving her car she is hit by a delivery truck, and killed. At the time of her death, the interest rate on a 1-year U.S. government bond was 5 percent. One year hence, the interest rate is 2 percent. Assume that her annual income would have growth 3 percent during each of the next two years, in which case income would be $75,000 x 1.03 = $77,250.00 next year and $75,000 x $(1.03)^2$ = $79,567.50 two years from now. The amount of money needed today, in order to invest in bonds for 2 years and receive $77,250.00 one year from now plus another $79,567.50 two years from now is $77,250.00/1.05 + $79,567.50/((1.05)(1.02)) = $147,864.15.

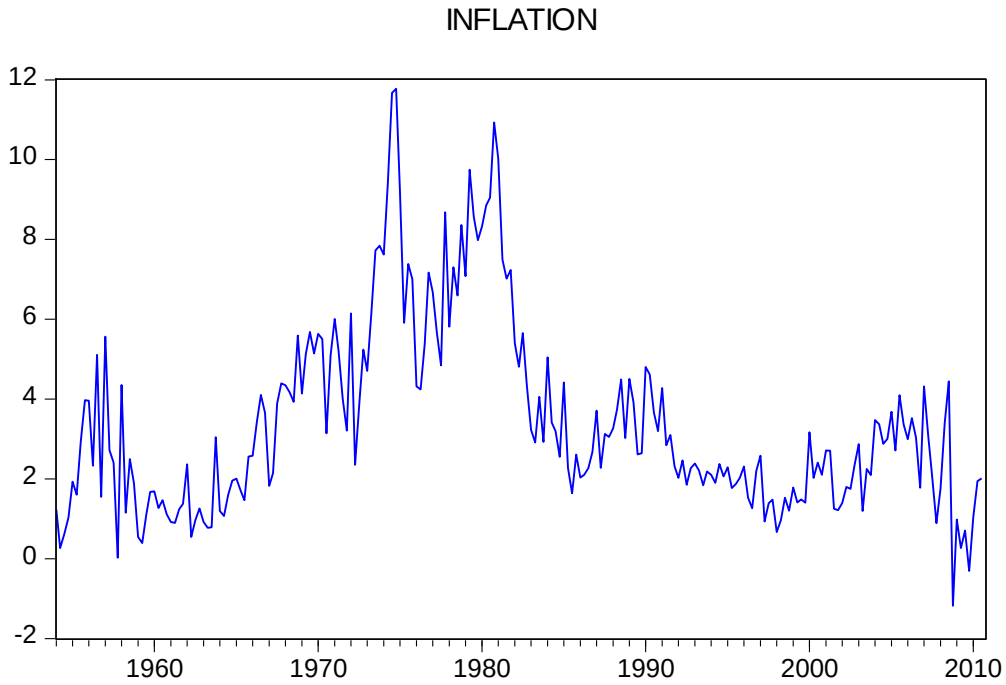
The role of PV in measuring economic damages

- Provide a conceptual foundation to lump sum economic valuation.
- Link valuation to the generation or recovery of any projected future income.
- Identify low-risk bond markets as a mechanism for projected income recovery.
- Provide guidance on possible investment of lump-sum awards post-judgment.

The impact of economic uncertainty on PV

- Future income projection may involve inflation forecasts.
- Future interest rates may be unknown.
- Multi-period bonds may be useful for discounting projected future income.
- PV formulas based on single-period bonds/bills may have little connection to the recovery of projected future income.

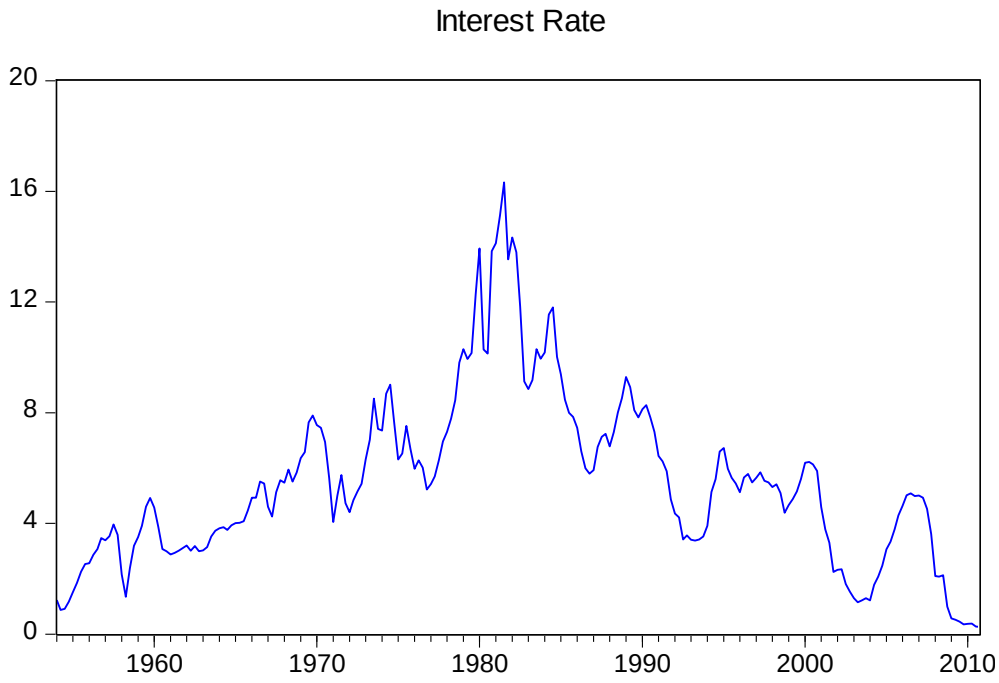
Economic Uncertainty, Continued



Inflation forecasts

- Economic Report of the President
- Survey of Professional Forecasters
- Yield spread on ordinary and inflation-adjusted (TIPS) bonds.

Economic Uncertainty, Continued



Multi-Year U.S. Treasury Bonds/Bills

- Coupon-bearing bonds
- Zero-coupon bonds (STRIPS)

Apply PV to Cases

Case 1: *Wrongful termination*.

Man age 62 terminated from bank job in Missouri last year (2010). Was earning $82,000 per year, with a standard benefits package.

$82,000	←	base pay, annual
1.0%	←	Real wage growth rate
1/1/2011	←	Loss start date
12/31/2014	←	Loss end date

PERIOD	PORTION OF YEAR	ELAPSED YEARS	INFLATION	PROJECTED EARNINGS	DISCOUNT FACTOR	DISCOUNT YEARS	PRESENT VALUE	CUMULATIVE PRESENT VALUE
1/11 - 3/11	0.25	0.25	1.55%	20,500	0.00%	0.00	$20,500	$20,500
4/11 - 12/11	0.75	1	1.55%	61,500	0.14%	0.38	$61,478	$81,978
2012, all	1	2	1.55%	84,104	0.32%	1.25	$83,769	$165,747
2013, all	1	3	1.95%	86,261	0.71%	2.25	$84,899	$250,646
2014, all	1	4	2.00%	88,823	1.07%	3.25	$85,803	$336,449

$336,449	←	Present Value, wages
18.37%	←	benefits %
$61,806	←	Present Value , benefits
$398,255	←	**Present Value, total**

Apply PV to Cases, Continued

Case 2: Personal injury. Woman age 45 slips and falls at work, injuring back. She can no longer work.

4/7/1963	←	Birth date
5/1/2008	←	Injury date
45.07	←	Age when injured, years
47.98	←	Age at trial, years
$44,200	←	base pay, annual
17	←	Expected worklife
1.5%	←	Real wage growth rate
7/1/2008	←	Loss start date
7/1/2025	←	Loss end date

PERIOD	PORTION OF YEAR	ELAPSED YEARS	INFLATION	PROJECTED EARNINGS	DISCOUNT FACTOR	DISCOUNT YEARS	PRESENT VALUE	CUMULATIVE PRESENT VALUE
7/08-12/08	0.5	0.5	2.90%	22,100	0.00%	0.00	$22,100	$22,100
2009, all	1	1.5	1.62%	46,164	0.00%	0.00	$46,164	$68,264
2010, all	1	2.5	0.93%	47,616	0.00%	0.00	$47,616	$115,880
1/11 - 3/11	0.25	2.75	1.55%	12,195	0.00%	0.00	$12,195	$128,074
4/11 - 12/11	0.75	3.5	1.55%	36,584	.140%	0.38	$36,458	$164,532
2012, all	1	4.5	1.55%	50,278	0.32%	1.25	$50,078	$214,610
2013, all	1	5.5	1.95%	51,824	0.71%	2.25	$51,005	$265,615
2014, all	1	6.5	2.00%	53,627	1.07%	3.25	$51,803	$317,418
2015, all	1	7.5	2.13%	55,520	1.60%	4.25	$51,898	$369,316
2016, all	1	8.5	2.13%	57,550	2.08%	5.25	$51,654	$420,970
2017, all	1	9.5	2.30%	59,654	2.59%	6.25	$50,844	$471,814
2018, all	1	10.5	2.30%	61,942	2.82%	7.25	$50,632	$522,446
2019, all	1	11.5	2.30%	64,317	3.04%	8.25	$50,237	$572,683
2020, all	1	12.5	2.30%	66,783	3.41%	9.25	$48,974	$621,657
2021, all	1	13.5	2.30%	69,344	3.63%	10.25	$48,115	$669,772
2022, all	1	14.5	2.33%	72,003	3.87%	11.25	$46,972	$716,744
2023, all	1	15.5	2.36%	74,786	4.04%	12.25	$46,038	$762,782
2024, all	1	16.5	2.38%	77,695	4.22%	13.25	$44,931	$807,713
2025, all	0.5	17	2.41%	40,369	4.30%	14.25	$22,156	$829,869

Does your economist understand PV?

A "Litmus Test": In determining a lump sum, can your economist explain how the lump sum can be used to generate the projected lost income?

Pitfalls

- Use of a fixed "below market" discount rate does not necessarily match income projections or bond market conditions.
- Use of current or historical interest rates on a bond of fixed maturity may not deliver the projected lost income.
- Use of interest rates on coupon-bearing bonds, rather than zero-coupon bonds, may lead to overcompensation.