

The Valuation of Economic Damages: A Case Study for the Forensic Accountant

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A litigation support service that forensic accountants provide is estimating economic damages due to an injury. Preparing a valuation of economics damages embraces a unique confluence of accounting, economics, and finance. The analysis of the loss of earning capacity for individuals arises from a variety of legal cases involving the need to estimate financial damages due to personal injury, employment discrimination, wrongful termination, and wrongful death. The different types of economic damages cases share common fundamental elements in estimating an individual's loss of earnings, but they are differentiated by methodological variations in the damage estimate itself.

For example, economic damages due to a personal injury would most likely include estimated lost earnings, lost fringe benefits, lost household services, and medical expenses. Wrongful death calculations, however, would be reduced by the decedent's personal consumption over their projected lifetime--and this reduction would reduce the residual damages for the heirs. On the other hand, employment discrimination or wrongful termination estimate of damages would include the estimated time a plaintiff would need to catch up to the previous earnings.

The most common approach to gathering the necessary information to calculate these losses is through a fact-finding questionnaire, interview, or a letter of request. The needed information usually includes:

- Personal information such as the date of injury, the level of education, marital status, race, age, and dependents.
- Pre-injury/death employment and earnings.
- Fringe benefits received.
- Post injury earnings and the likelihood of future employment.
- Household services provided before the injury/death and after the injury/death.

The objective of this article is to illustrate the application of how to estimate personal economic damage calculations. This case study estimates the value of economic damages due to a personal injury. In the next section, we introduce the facts of the case.

Case Summary

The focus of this case is to provide a fundamental valuation of economic damages due to a personal injury. The aim is to restore the injured party to the position he or she would have otherwise been in had the injury not occurred.

The facts of the case are as follows: Jane Doe suffered an injury on 06/30/X1 at the age of 44.50. Due to the gravity of her injuries she had to quit her job at Company A immediately. She remained out of work until six months later when she was able to secure a new job that accommodated her disability at Company B on 01/01/X2.

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Prior to Jane Doe's injury, her annual salary at Company A was \$30,000, and her wages were growing annually at the average rate of inflation (3.35%). In addition to Jane Doe's base salary, she also received fringe benefits (health insurance, social security etc.) in the amount of 14.50% of her base salary.

During the six months that Jane Doe was unemployed, she did not receive any remuneration (i.e., short-term disability, unemployment etc.). Jane Doe secured an alternate job at Company B on 01/01/X2 that catered to her permanent physical limitations. Her annual salary at Company B was \$19,500. Her salary at Company B was expected to grow at the average rate of inflation (3.35%). In addition to her base salary at Company B she received limited benefits in the amount of 10.50% of her base salary.

Assignment

A law firm has hired you as the forensic accountant to prepare a calculation of economic damages due to the injury that Jane Doe sustained. For purposes of this assignment, the following guidance and assumptions have been provided:

1. Despite Jane Doe's injury, she expects to continue working until the age of sixty-five (65). Your objective is to calculate the economic damages that Jane Doe will experience over her work-life expectancy (age 65) due to lost wages and benefits.
2. Published statistics illustrates that Jane Doe's life expectancy, based on her age and education, is eighty-five (85) years of age.
3. As a result of Jane Doe's injury, she can no longer perform household services. Legal counsel has asked you to calculate the amount of economic damages needed to replace the loss of household services over Jane Doe's remaining life expectancy.
4. Jane Doe's trial date is scheduled on the two-year anniversary of her injury. Economic damages calculated from that date forward will need to be discounted to present value.

Enclosure A - Economic Damage Assumptions

Name of Injured	Jane Doe
Sex	Female
Date of Personal Injury	June 30, XXX1
Age at Date of Personal Injury	Age - 44.50
Age at Date of Trial	Age - 46.50
Worklife Expectancy	Age - 65.00
Life Expectancy	Age - 85.00
Growth Rate	3.35%
Tax Rate	25.65%
Benefits as a % of Annual Salary	
<i>Company A</i>	14.50%
<i>Company B</i>	10.50%
Risk of Unemployment	4.80%
Discount Rate (Risk-Free Rate of Return)	4.50%
Income	
<i>Wages: Annual Salary at Company A (Pre-Injury)</i>	\$ 30,000.00
<i>Wages: Annual Salary at Company B (Post-Injury)</i>	\$ 19,500.00
Household Replacement (Average per/hr)	
<i>Food Preparation / Housekeeping Workers (Average per/hr)</i>	\$ 14.50
<i>Replacement Hours per year (10 hours p/week x 52 weeks)</i>	520 Hours
<i>Annual Household Replacement Cost (520 x \$14.50)</i>	\$ 7,540.00
Present Value Formula:	$\frac{NetEconomicDamages}{(1 + DiscountRate)^{TimeFromDaeofTrial}}$

ENCLOSURE B - PROJECTED INCOME
PRE INJURY EARNING CAPACITY BEFORE DISCOUNTING

		(a)	(b)	(c)	(d)	(e)	(f)
Period by Age		Projected Gross Wages	Taxes	Fringe Benefits	Net Economic Benefit	Risk of Unemployment	Projected Income Age 44.50 - 65.00 Before Discounting
From	To						
44.50	45.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
45.00	46.00	-	-	-	-	-	-
46.00	46.50	-	-	-	-	-	-
46.50	47.00	-	-	-	-	-	-
47.00	48.00	-	-	-	-	-	-
48.00	49.00	-	-	-	-	-	-
49.00	50.00	-	-	-	-	-	-
50.00	51.00	-	-	-	-	-	-
51.00	52.00	-	-	-	-	-	-
52.00	53.00	-	-	-	-	-	-
53.00	54.00	-	-	-	-	-	-
54.00	55.00	-	-	-	-	-	-
55.00	56.00	-	-	-	-	-	-
56.00	57.00	-	-	-	-	-	-
57.00	58.00	-	-	-	-	-	-
58.00	59.00	-	-	-	-	-	-
59.00	60.00	-	-	-	-	-	-
60.00	61.00	-	-	-	-	-	-
61.00	62.00	-	-	-	-	-	-
62.00	63.00	-	-	-	-	-	-
63.00	64.00	-	-	-	-	-	-
64.00	65.00	-	-	-	-	-	-

- (a) Projected gross wages that Jane Doe would have earned, but for the injury, would have grown each year by the average rate of inflation.
- (b) Jane Doe's effective tax rate, which includes Federal, State, Social Security & Medicare taxes, would have reduced her gross wages had an injury not occurred.
- (c) Working condition fringe benefits that Company A would have provided to Jane Doe, but for the injury, would have been in addition to her gross wages.
- (d) The net economic benefit that Jane Doe would have earned, but for her injury, represents her gross wages adjusted for taxes and employer provided, working condition fringe benefits. The net economic benefit represents the income stream that would be subject to loss in the event of unemployment, had an injury not occurred, and had she remained employed with Company A.
- (e) The risk of unemployment for private industry workers in the same field as Jane Doe (Company A & Company B are in the same industry) have an unemployment rate that you derived from the US Department of Labor Statistics. The risk of unemployment reduces the net economic benefit.
- (f) The net economic benefit adjusted for the risk of unemployment represents the income that Jane Doe was projected to earn through worklife expectancy had she not suffered from a personal injury.

ENCLOSURE C - PROJECTED INCOME
POST INJURY EARNING CAPACITY BEFORE DISCOUNTING

		(a)	(b)	(c)	(d)	(e)	(f)
Period by Age		Projected Gross Wages	Taxes	Fringe Benefits	Net Economic Benefit	Risk of Unemployment	Projected Income Age 44.50 - 65.00 Before Discounting
From	To						
44.50	45.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
45.00	46.00	-	-	-	-	-	-
46.00	46.50	-	-	-	-	-	-
46.50	47.00	-	-	-	-	-	-
47.00	48.00	-	-	-	-	-	-
48.00	49.00	-	-	-	-	-	-
49.00	50.00	-	-	-	-	-	-
50.00	51.00	-	-	-	-	-	-
51.00	52.00	-	-	-	-	-	-
52.00	53.00	-	-	-	-	-	-
53.00	54.00	-	-	-	-	-	-
54.00	55.00	-	-	-	-	-	-
55.00	56.00	-	-	-	-	-	-
56.00	57.00	-	-	-	-	-	-
57.00	58.00	-	-	-	-	-	-
58.00	59.00	-	-	-	-	-	-
59.00	60.00	-	-	-	-	-	-
60.00	61.00	-	-	-	-	-	-
61.00	62.00	-	-	-	-	-	-
62.00	63.00	-	-	-	-	-	-
63.00	64.00	-	-	-	-	-	-
64.00	65.00	-	-	-	-	-	-

- (a) Jane Doe secured alternate employment six months after her injury earning lesser wages. Those wages are projected to grow each year by the average rate of inflation through Jane Doe's worklife expectancy.
- (b) Jane Doe's effective tax rate, which includes Federal, State, Social Security & Medicare taxes, reduces her gross wages.
- (c) Working condition fringe benefits that Company B is projected to provide Jane Doe are in addition to her gross wages.
- (d) The net economic benefit that Jane Doe is projected to earn/receive with Company B represents her gross wages adjusted for taxes and employer provided, working condition fringe benefits. The net economic benefit represents the income stream that would be subject to loss in the event of unemployment.
- (e) The risk of unemployment for private industry workers in the same field as Jane Doe (Company A & Company B are in the same industry) have an unemployment rate that you derived from the US Department of Labor Statistics. The risk of unemployment reduces the net economic benefit.
- (f) The net economic benefit adjusted for the risk of unemployment represents the income that Jane Doe is projected to earn through her worklife with her alternate employment at Company B.

ENCLOSURE D - HOUSEHOLD REPLACEMENT COST
BEFORE DISCOUNTING

Period by Age		(a) Cost to Replace HouseHold Services	
From	To		
44.50	45.00	\$	-
45.00	46.00		-
46.00	46.50		-
46.50	47.00		-
47.00	48.00		-
48.00	49.00		-
49.00	50.00		-
50.00	51.00		-
51.00	52.00		-
52.00	53.00		-
53.00	54.00		-
54.00	55.00		-
55.00	56.00		-
56.00	57.00		-
57.00	58.00		-
58.00	59.00		-
59.00	60.00		-
60.00	61.00		-
61.00	62.00		-
62.00	63.00		-
63.00	64.00		-
64.00	65.00		-
65.00	66.00		-
66.00	67.00		-
67.00	68.00		-
68.00	69.00		-
69.00	70.00		-
70.00	71.00		-
71.00	72.00		-
72.00	73.00		-
73.00	74.00		-
74.00	75.00		-
75.00	76.00		-
76.00	77.00		-
77.00	78.00		-
78.00	79.00		-
79.00	80.00		-
80.00	81.00		-
81.00	82.00		-
82.00	83.00		-
83.00	84.00		-
84.00	85.00		-

(a)

On average, prior to her injury, Jane Doe performed approximately 10 hours per week on household tasks. After her injury, Jane Doe could no longer perform any of her household tasks. You researched the Occupational Employment Statistics Survey which publishes mean hourly wages for household workers in the same county that Jane Doe resides. Each year, the replacement cost is projected to grow by the average rate of inflation.

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ENCLOSURE E - TOTAL ECONOMIC DAMAGES

PAST & FUTURE ECONOMIC DAMAGES (DISCOUNTED TO THE TRIAL DATE)

Period by Age		(a) Projected Income <i>Pre Injury</i>	(b) Projected Income <i>Post Injury</i>	(c) HH Replacement Value	(d) Net Economic Damages	Time from the Date of Trial	(e) Economic Damages Discounted to the
From	To						
44.50	45.00	\$ -	\$ -	\$ -	\$ -		\$ -
45.00	46.00	-	-	-	-		-
46.00	46.50	-	-	-	-		-
Total Past Economic Damages (I):							\$ -
46.50	47.00	-	-	-	-	0.50	-
47.00	48.00	-	-	-	-	1.50	-
48.00	49.00	-	-	-	-	2.50	-
49.00	50.00	-	-	-	-	3.50	-
50.00	51.00	-	-	-	-	4.50	-
51.00	52.00	-	-	-	-	5.50	-
52.00	53.00	-	-	-	-	6.50	-
53.00	54.00	-	-	-	-	7.50	-
54.00	55.00	-	-	-	-	8.50	-
55.00	56.00	-	-	-	-	9.50	-
56.00	57.00	-	-	-	-	10.50	-
57.00	58.00	-	-	-	-	11.50	-
58.00	59.00	-	-	-	-	12.50	-
59.00	60.00	-	-	-	-	13.50	-
60.00	61.00	-	-	-	-	14.50	-
61.00	62.00	-	-	-	-	15.50	-
62.00	63.00	-	-	-	-	16.50	-
63.00	64.00	-	-	-	-	17.50	-
64.00	65.00	-	-	-	-	18.50	-
65.00	66.00	-	-	-	-	19.50	-
66.00	67.00	-	-	-	-	20.50	-
67.00	68.00	-	-	-	-	21.50	-
68.00	69.00	-	-	-	-	22.50	-
69.00	70.00	-	-	-	-	23.50	-
70.00	71.00	-	-	-	-	24.50	-
71.00	72.00	-	-	-	-	25.50	-
72.00	73.00	-	-	-	-	26.50	-
73.00	74.00	-	-	-	-	27.50	-
74.00	75.00	-	-	-	-	28.50	-
75.00	76.00	-	-	-	-	29.50	-
76.00	77.00	-	-	-	-	30.50	-
77.00	78.00	-	-	-	-	31.50	-
78.00	79.00	-	-	-	-	32.50	-
79.00	80.00	-	-	-	-	33.50	-
80.00	81.00	-	-	-	-	34.50	-
81.00	82.00	-	-	-	-	35.50	-
82.00	83.00	-	-	-	-	36.50	-
83.00	84.00	-	-	-	-	37.50	-
84.00	85.00	-	-	-	-	38.50	-
Total Future Economic Damages (II):							\$ -
Total Economic Damages to Jane Doe (I + II):							\$ -

ENCLOSURE F - SUMMARY OF ECONOMIC DAMAGES

DUE TO PERSONAL INJURY ON JUNE 30, XXX3

JANE DOE

		<u>Reference</u>
Total Past Economic Damages	\$ -	<i>Enclosure E</i>
Total Future Economic Damages (<i>at Present Value</i>)	<u>-</u>	<i>Enclosure E</i>
Total Economic Damages	<u>\$ -</u>	<i>Enclosure E</i>

Case Learning Objectives and Implementation Guidance

The purpose of this case is to teach students studying forensic accounting how to prepare a valuation of economic damages due to a personal injury. Heitger and Heitger (2008) identified forensic accounting topics in litigation support services that provide significant learning experiences for students. They stated, “Our favorite approach to achieving student experience objectives is *case instruction*”. DiGabriele (2009) demonstrated that estimating economic damages requires an emphasis on time value of money concepts and critical analytical skills. These competencies are closely associated with the specific skills that were established by DiGabriele (2008). For example, this case melds deductive analysis, critical thinking, unstructured problem solving, analytical proficiency, and communication as essential skills. The case also allows students to apply analytical judgments by rationalizing through the economic damage assumptions. Students will distinguish between the factors introduced to calculate proper economic damages. A discussion of student findings should follow after completion of the analysis.

Implementation

Implementation of the case is adaptive. The case can be conducted as an individual project or a group assignment. The group assignment should feature a succeeding presentation with an illustration of the student answers. Instructors should develop a conversation of the methodology that each group uses in their calculation of economic damages. Students should include reasonable theoretical assumptions to support their conclusions. The intended audiences for this case are undergraduate and graduate students in a forensic accounting course. This case has been used at the graduate level in a university setting for eight years.

Students’ Classroom Learning Experience

Table 1 documents data received from students. The frequencies of the responses are illustrated using a five-point Likert scale, 1 = strongly agree, 2 = agree, 3 = neither agree/disagree, 4 = disagree, 5 = strongly disagree. The students have commented that the non-traditional thought process of merging accounting, economics, and finance into one assignment is beneficial to their overall studies. The benefits from a teaching perspective are introducing students to a unique way of analyzing and interpreting financial information using an integrated approach.

The case has been presented to a diverse group of faculty many times. Sample comments are as follows:

1. The case brings the real application of forensic accounting practice to the classroom.
2. Case studies of this nature are important to expose students to an unfamiliar but natural thought process.
3. The integration of business disciplines to calculate economic damages is important for student career development.

Case implementation is seamless using a quality forensic accounting textbook as a guide. The recommended protocol is the preparation and presentation of the case in groups. Upon completion, the instructor should lead a class discussion of case preparation methodologies.

TABLE 1
Results of Student Survey
(n=130)

1-Strongly Agree 2-Agree 3-Neither agree/disagree 4-Disagree 5-Strongly Disagree	1		2		3	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
1. This case required a range of traditional & nontraditional business skills to solve the case.	105	80.77%	25	19.23%	0	0
2. This case has helped me understand the concept and application of economic damages.	109	83.85%	21	16.15%	0	0
3. Presenting case findings and working in groups help me grasp case concepts better than working alone.	112	86.15%	18	13.85%	0	0
4. My understanding of the role of forensic accountants in economic damages is better understood as a result of completing this case.	118	90.77%	12	9.23%	0	0
5. This case was an effective learning assignment.	121	93.08%	9	6.92%	0	0
6. This case should be used in future forensic accounting classes.	115	88.46%	15	11.54%	0	0
7. My understanding of the difference between forensic accounting skills and traditional accounting skills is clearer as a result of this case.	107	82.31%	22	16.92%	1	0.77%
8. Overall, this case has met my expectations.	108	83.08%	21	16.15%	1	0.77%

References

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