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As a practicing forensic economist and a member of the American Academy of Economic and Financial Experts, I pledge to provide unbiased and accurate economic analysis for all litigation related engagements, to strive to improve the science of forensic economics, and to protect the integrity of the profession through adherence to the following tenets of ethical practice:

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While all forensic economists have the discretionary right to accept retention for any case or proceeding within their expertise, they should decline involvement in any litigation when asked to take or support a predetermined position, when having ethical concerns about the nature of the requested assignment, or when compensation is contingent upon the outcome.

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Forensic economists shall be honest, thorough and open in their analyses and shall not provide the retaining or opposing attorney or the court, any information, through commission or omission that they know to be false or misleading. They shall exert due diligence, and at all times strive to use competent judgment to avoid the use of invalid or unreliable information.

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Forensic economists shall clearly state the sources of information and material assumptions leading to their opinions. Such disclosure should be in sufficient detail to allow identification of specific sources relied upon, and replication of the analytical conclusions by a competent economist with reasonable effort.

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Pension Treatment under the Collateral Source Rule

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Abstract: *Although collateral source rules generally prohibit admission of evidence that the plaintiff has received compensation from sources other than the defendant, there are a number of exceptions. This article examines both the rule and the exceptions to the rule for disability or survivor's pensions. It also identifies rulings that apply somewhat contradictory logic in affirming exactly what types of collateral source income is permissible as evidence.*

I. Introduction

The collateral source rule (CSR) typically prohibits the admission of evidence that the plaintiff (or decedent's survivor) has received compensation from some source other than from the defendant. Common types of collateral source income include unemployment insurance, medical insurance, life insurance, Social Security and Medicare benefits, and pensions. The primary rationale for CSRs is to require defendants to pay the full costs of their actions. This rule enhances efficiency by creating an incentive for potential defendants to provide greater care for employees or others to whom they owe a duty.

Another rationale for collateral source income exclusion from evidence is that such benefits may be viewed as part of the employment contract and thus the defendant is not entitled to credit for them. On the other hand, in order to prevent the defendant from paying twice, some decisions have found admission of collateral source offsets appropriate. Thus, if the employer is the source of the funds at issue, then the payments can be deducted from the award. Finally, the main exceptions to the inadmissibility of collateral source income have been as the result of statutory tort reform and primarily include medical malpractice lawsuits.

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Exclusion of pension benefits as one collateral source offset to earnings loss is well established in federal courts and many state jurisdictions. Nonetheless, some limited discretion has been accorded to lower courts on appeal by allowing selected information pertaining to a plaintiff's pension, including possible incentives to retire at a particular age. More interesting and in some ways more complex exceptions involve whether to allow as offset to the loss of a regular pension evidence of disability pensions being received by injured plaintiffs, or of death benefits in the form of a survivor's pension provided via a decedent's retirement plan. In a California injury case (*Rotolo Chevrolet v. The Superior Court of the County of San Bernadino* 1983), a trial court decision was reversed on appeal for disallowing evidence of the plaintiff's disability pension benefit as a collateral income source; the appeals court ruled that disability pension benefits were admissible as an offset to future lost pension benefits, but not as an offset to future lost earnings.

That same California case was cited in a Delaware case (*Sears v. Midcap* 2006), in which the trial court decision was reversed on appeal for not allowing the value of the survivor's existing pension benefit to be introduced as an offset to the decedent spouse's potential future pension benefit. And in a Florida death case (*Russo v. Lorenzo* 2011), a trial court decision was also reversed, rejecting the idea that a death benefit was equivalent to "life insurance" which would have been prohibited under the CSR, instead noting that this benefit was created under a city's retirement plan and hence allowed its admission as evidence. In contrast, in a California wrongful death case (*McKinney v. California Portland Cement Co.* 2002), an appeals court upheld a trial court's exclusion of a survivor's pension as a "new benefit" issued for the first time in the survivor's name, which was as a direct result of her spouse's death. Since there was no evidence that the surviving spouse received pension benefits prior to her husband's death, and the only indications were that she received these survivor's benefits after her husband's death, the court implicitly did not consider this benefit as a pension replacement. Thus, the court said that these new benefits "…are collateral sources that may not be used to diminish [defendant's] financial responsibility for the death of [decedent]."

Case law in many states is silent on nuanced pension issues such as the ones just noted. Where case law is silent, attorneys (and consequently forensic economists [FEs]) may differ on whether disability and/or survivor's pensions should be considered at all, and if so, what losses are they offsetting, and how such pension offsets to losses should be valued. These and related issues involving pensions as a collateral source income are examined in this paper, including their resolution in a recent case in which the author was involved.

Section II presents background on CSRs. Section III discusses key cases on admissibility of disability or survivor's pensions. The key cases range under five subtopics within Section III as follows: (1) cases establishing the complete prohibition of pension income under the CSR; (2) more nuanced cases but ones that were still unsuccessful challenges to this rule; (3) successful challenges to the prohibition of pension evidence under the CSR; (4) cases with qualifications on admissibility of evidence pertaining to age of retirement; and (5) cases with other qualifications on admissibility of evidence besides those pertaining to age of retirement. Section IV presents a comparison of two different methods of accounting for disability pensions as offsets to regular pensions in personal injury cases where the loss of a regular pension benefit is part of the damage calculation. Section V offers observations and conclusions.

II.   Background

Many books and articles have been written about CSRs and their evolution as part of American tort law. According to Melancon and Brilleaux (2012), the CSR first appeared in American tort law via the United States Supreme Court decision, *The Propeller Monticello v. Mollison*, 58 U.S. 152 (1854). In that case dealing with admiralty law, the Supreme Court ruled that damages awarded to the plaintiff should not be reduced by the amount of insurance proceeds that the plaintiff received. The principle that collateral benefits could not be considered in determining the recovery to which a plaintiff was entitled was applied from common law, and ultimately was adopted by the American Law Institute (1979, §920A), as quoted in Melancon and Brilleaux (2012, pp. 42-43): "Payments made to or benefits conferred on the injured party from other sources are not credited against the tortfeasor's liability, although they cover all or part of the harm for which the tortfeasor is liable."

A comprehensive listing of other background sources on collateral source issues is beyond the scope of this paper. A useful review of historical literature on this topic, however, is contained in Schap and Feeley (2008). This article addressed various arguments, pro and con, involving the CSR and its purported facilitation of double recovery by the victim, as well as various statutory reform efforts underway at that time. Schap and Feely examine all 50 U.S. states and other jurisdictions to identify and categorize the various reform efforts, which were apparently focused on issues with the largest public policy and expense implications for government at all levels. Not surprisingly,

focus was on awards under which CSRs affected medical insurance premiums, and malpractice awards in particular.

Feely, Horan and Schap (2017), updating Feely and Schap (2008), broadened the number of major categories of statutes across all U.S. jurisdictions involving the CSR from six to eight. These are summarized (in some cases modestly abridged here) as follows:

- Status of CSR (modified or eliminated);
- Insurance (payments from an insurer may or may not be considered as evidence);
- Medical Malpractice (whether evidence of collateral source payments may be introduced, or only introduced in such cases);
- Award Reductions (awards reduced for collateral source income received prior to verdict or either prior to or expected after verdict)
- Public Sector Collateral Sources (exception to ordinary CSR exists for any federal program or exception exists for worker's compensation program)
- Subrogations and Liens (collateral source payments may not be introduced if the source of the payment has a right of subrogation against the proceeds of plaintiff's recovery)
- Miscellaneous (exception for violent crime victim compensation).

Nothing specific to either disability or survivor's pension under CSRs was mentioned in Feely, Horan and Schap (2017). It appears that only by reviewing case law decisions across various jurisdictions can some clarity be provided about how CSRs are applied in damages calculations pertaining to pensions as a potential collateral income source.

To begin trying to categorize CSRs pertaining to pensions across jurisdictions, an in-depth review of case law was conducted using the various compilations of legal decisions of interest to FEs. Such compilations exist in online databases maintained by Thomas Ireland, Professor Emeritus of Economics (University of Missouri, St. Louis). His case law databases are accessible to all via links on his website: http://www.umsl.edu/~irelandt/index.html. In addition, structured searches of Dr. Ireland's data bases can be performed via a website maintained by David Boyd: https://forensicsdb.denison.edu/. Although another comprehensive case law database is accessible from LexisNexis on a subscription-only basis, most relevant decisions at the appellate level, except those that are decades old, are also obtainable without subscription via other free online sources such as Google Scholar (https://scholar.google.com/), Justia (https://www.justia.com/) and CaseText (https://casetext.com/).

Using mainly the free websites just noted, case law pertaining to pension treatment under the collateral source rule across all U.S. jurisdictions was reviewed and categorized. The categorized findings are presented in the next section.

III. Key Injury, Death, and Employment Law Cases Involving the Collateral Source Rule (CSR) and Pensions

Many federal and state cases have involved the application of the CSR to pensions, either in whole or in part. Any selection of the most important of such cases, as well as the grouping of them by subtopic, requires some subjectivity. Here, a total of 23 cases were selected and grouped into five subtopic areas. A discussion of each subtopic area with the selection of the most salient of the 23 cases by subtopic area is covered in the remainder of this section. More detailed summaries of all 23 cases are provided in Appendix A. All cases are categorized by type within each subtopic area as involving employment law (EL); wrongful death (WD); or one of two groupings of personal injury (PI) cases, those either subject to Federal Employers' Liability Act[1] (FELA) denoted PI-FELA, or those not, denoted PI-Non-FELA. The number of cases of each type in the subtopic are noted parenthetically after its respective abbreviation in the subtopic heading. For example, the designations EL=4, WD=1, and PI-FELA=1 included under the first subtopic area to follow mean that there are four cases involving Employment Law (EL), and there is one case of each type involving Wrongful Death (WD) and Personal Injury-FELA (PI-FELA).

Cases Establishing the CSR as Prohibiting Pensions of Any Type (Ordinary, Disability, and Widows) to Offset Lost Earnings/Earning Capacity: EL=4; WD=1, PI-FELA=1

Perhaps the first major case specifically prohibiting a disability pension to offset lost earnings is *Eichel v. N.Y. Central Railroad Co.*, 1963 (PI-FELA). Here, the U.S. Supreme Court reversed an appeals court decision, stating that evidence of a disability pension as a collateral benefit is "readily subject to misuse by a jury." In *EEOC v. Grady*, 1988 (EL), a plaintiff who was forced to retire at age 70 successfully sued his employer for age discrimination. Defense's appeal, arguing that ordinary pension benefits that plaintiff had received should be allowed to offset back pay, was rejected based on

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[1] FELA establishes compensation rules that apply to injured railroad workers in lieu of worker's compensation. One primary difference is that under FELA, worker's must prove their employee is at fault.

the concept that pension benefits were a collateral source and may be viewed as compensation earned by the employee.

In *Hamlin v. Charter Twp. of Flint*, 1996 (EL), an appeals court ruled that collateral pension benefits should not be deducted from an award for discrimination violations; and although it upheld the general principle that a district court has discretion in awarding front pay, it added "that the decision of whether to offset collateral pension benefits from a discrimination award is a policy decision that should not be left to the individual discretion of each district court." In another employment case, *Salveson v. Douglas County*, 2001 (EL), the Wisconsin Supreme Court reversed an appeals court reversal of a trial court's exclusion of a disability pension, citing *EEOC v. O'Grady* that such benefits are part of compensation.

The CSR was broadly applied in *McKinney v. California Portland Cement Co.*, 2002 (WD), upholding the exclusion from evidence of a widow's benefit. Even though her deceased husband had previously retired and was drawing pension and Social Security benefits prior to his death, and even though widow's benefit came from the same source as husband's earnings, the appeals court ruled that these were considered as "new benefits" issued for the first time in her name as a direct result of the death, and hence could not be introduced under the CSR. Finally, in *Lovett v. City and County of San Francisco*, 2004 (EL), an appeals court upheld a trial court's exclusion of a disability pension, explicitly comparing this pension with insurance benefits as both being part of the employment contract and that "the tortfeasor is generally entitled to no credit for them."

Unsuccessful Challenges to the CSR as Applied to Pensions: EL=2; PI-FELA=2; WD=1

Many challenges to the CSR as applied to pensions have been unsuccessful. In *Melton v. Illinois Central Gulf Railroad Co.*, 1988 (PI-FELA), a trial court rejected defense's argument that its payments made under a voluntary disability plan should be deductible from an award, a ruling that was upheld, citing *Eichel* (noted previously). In another, *Lussier v. Runyon*, 1995 (EL), a federal appeals court reversed a lower court that allowed disability benefits from retirement plans to offset front pay losses. Citing *Hamlin v. Charter Twp. of Flint* (noted previously), the appeals court affirmed the principle of trial court discretion in allowing collateral benefits as evidence for both back pay and front pay, but the award was canceled and returned on procedural grounds of not reopening the record for additional factual information once it was closed.

In *CSX v. Day*, 1993 (PI-FELA), the trial court sustained an objection by plaintiff of an allegedly prejudicial statement in defense's

closing argument, stating that the plaintiff "hasn't worked long enough to receive a pension," creating the impression that he would never be eligible for a pension even though he would have been eligible at age 60. Defense's appeal was rejected because it did not request the trial court to give a curative instruction to the jury. The *Ortner v. Enterprise Rent-A-Car Co.*, 2008 (WD) decision reported a defense appeal of a trial court's exclusion of the survivor's (or widow's) pension, citing the *Rotolo* decision (noted in the Introduction herein and categorized in the next subsection). The appeals court upheld the trial court's exclusion, rejecting *Rotolo* logic, instead citing the *McKinney* decision (noted previously), which held that survivor's benefits were new benefits issued in the survivor's name. In rejecting defense's argument that the decedent could not have both retired for disability and subsequently received his regular pension, the appeals court said the widow could have received both if her husband had first retired, begun receiving his pension, and then died. Finally, in *Mize-Kurzman v. Marin Community College Dist.*, 2012 (EL), trial court said the jury was entitled to consider the "availability" to a plaintiff of a retirement pension, and that the extent to which it could reduce her damages was an issue of fact for the jury. The appeals court rejected this argument, citing *McKinney* among other cases, where it was found that state pensions are independent income sources from state schools, and that the CSR is no different because compensation comes from a pension rather than an insurance policy.

Successful Challenges to the CSR as Applied to Pensions: WD=2; PI-Non-FELA=1; EL=1

In *Fariss v. Lynchberg Foundry*, 1985 (EL), an alleged victim of wrongful termination due to age discrimination declined a survivor's benefit option in lieu of a lump sum payment upon termination; hence no pension benefits would have been paid had he remained employed until his death. Since he died after he was terminated, however, an appeals court ruled that defense was entitled to an offset against both back pay and front pay for the lump sum benefits that he received upon termination.

Perhaps the most successful challenge to the broad application of the CSR by excluding disability pensions in injury cases came in *Rotolo v. Superior Court of Co. of San Bernadino*, 2003 (PI-Non-FELA). The trial court excluded evidence of disability retirement benefits under California's CSR. Defense appealed and the trial court decision was reversed, with the appeals court noting that it was appropriate to consider disability retirement benefits as a collateral source but only

for replacing regular retirement benefits, and not for replacing lost earnings.[2] Although this case was cited in the *Mize-Kurzman* case, its logic in that case was rejected in favor of the *McKinney* decision. However, there is at least one reason why the *Rotolo* logic is more appropriate in PI rather than WD cases: Not permitting a disability pension to offset a regular pension was viewed by the court as resulting in "triple compensation," *i.e.*, lost income, lost regular retirement benefits, and receipt of actual disability retirement benefits, which the court called an "inequitable result." This contrasts somewhat with WD cases, in which the survivor's pension rather than a disability pension replaces the lost regular retirement pension. Perhaps because a survivor's pension is issued in a different person's name, and is not the same as a disability pension, courts have rendered mixed rulings on this issue (c.f. *Sears* and *Russo* [full citations to follow under this subtopic], which differ somewhat from *McKinney*. The court's logic in *Rotolo* was in part prefigured by *Oden v. Chemung Co*, NY 1995 (PI-Non-FELA) (categorized in the final subsection), which placed a restriction on a disability pension to only offset the value of a lost regular pension.

Among other successful challenges to the CSR were two wrongful death cases applicable in other jurisdictions. For example, in *Sears v. Midcap*, 2006 (WD), a trial court awarded damages to the widow that included loss of a military pension and Social Security benefits, but applying the CSR, it excluded the fact that the widow would continue receiving substantial portions of both in the future. The Delaware Supreme Court reversed this exclusion, and citing *Rotolo* it stated that plaintiff could not use the CSR to prevent defense from introducing evidence of the plaintiff receiving a pension. Finally, in *Russo v. Lorenzo*, 2011 (WD), similar to *Sears*, a trial court excluded mentioning the widow's benefit as a collateral source, and precluded defense from questioning about her continuing benefits from her late husband's retirement plan. Decedent was a police officer who had not yet reached retirement age, was not yet vested in the retirement plan, but the widow had begun receiving death benefits from the retirement plan. A Florida appeals court said that the question was whether the

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[2] The Appeals Court claimed that by not permitting the disability pension to be considered, the plaintiff would wind up with: "...triple compensation. He will obtain damages based on lost income, additional damages based on his lost 'regular' retirement benefits, and his actual disability retirement benefits." The court wrote the CSR "...does not require this inequitable result." It emphasized its logic by stating that, "A pension is a pension is a pension," which spawned an eponymous article by Hudgins and Ireland (2008) exploring the decision's far reaching potential application.

death benefit should be considered a pension, for which evidence was permissible, as opposed to life insurance, which was impermissible under CSR. The appeals court rejected the notion that participation in the retirement plan was equivalent to life insurance within the meaning of CSR, and permitted as evidence the continued payment of retirement plan benefits in the form of a widow's pension.

Qualifications Involving Admissibility of Evidence Pertaining to Age of Retirement: PI-FELA=4

Four PI-FELA cases are presented involving the admissibility of evidence pertaining to age of retirement. One obvious reason why this aspect is significant to FELA cases is that railroad workers with 30 years of service can retire at age 60 and earn almost as much after taxes from their pension as they could while continuing to work full time (Hudgins and Ireland 2008). In fact, in a 2015 study by the Railroad Retirement Board, among "30/60" eligible workers during 2010-2012, the vast majority retire within a few years of reaching age 60 (59%, 47%, and 36% of those remaining who reached the ages 60, 61 and 62) (US RRB 2015, Table S-30, p. 74). Making juries aware of these statistics has been controversial in possibly implying that the availability of such pension benefits might induce plaintiffs to use injuries occurring around age 60 as an excuse to retire early. The four PI-FELA cases below all involve similar issues. To generalize, evidence of an employee/plaintiff's eligibility for retirement benefits at a particular age is not usually permissible, but statistics about the average retirement age of railroad workers are permissible.

First, in the *Greiser v. National Railroad Passenger Corp.*, 2000 decision, a trial court permitted defense to ask plaintiff's expert if plaintiff retired at age 62, would he receive about as much from pension benefits as from working. The Pennsylvania Supreme Court reversed the trial court and disallowed this evidence as violating the CSR, citing *Eichel*. In *Norfolk Southern Railway Corp. v. Tiller*, 2008, a trial court was upheld on appeal for precluding testimony about the "30/60" retirement policy under CSRs, even though the appeals court acknowledged that such evidence was "both relevant and material."

Next, in *CSX v. Pitts*, 2013, an appeals court drew a fine distinction somewhat more limiting than a Special Appeals Court had permitted, stating that "although retirement eligibility information in a FELA case is barred by the collateral source rule, statistics about average retirement age for railroad workers is not." Finally, in *Giza v. BNSF Railway Co.*, 2014, citing *CSX v. Pitts*, the Iowa Supreme Court precluded evidence on the availability of retirement benefits for employees meeting the 30/60 criteria, but reversed the trial court's exclusion of evidence of the retirement pattern of railroad workers.

Qualifications Involving Admissibility of Evidence Not Pertaining to Age of Retirement: PI-Non-FELA=3; WD=1

The last category of decisions includes the *Adventure Bound Sports, Inc.*, 1994 (WD) case, where a Georgia district court ruled that the loss of military retirement income need not be established with mathematical precision, but that "the amount awarded must bear some relation to the evidence and cannot be based on speculation."

The next decision is a significant one, *Oden v. Chemung Co. Industrial Development Agency*, 1995 (PI-Non-FELA). Here, a trial court applied logic that was partially similar to the *Rotolo* decision in allowing evidence of disability retirement benefits, but since the disability benefits exceeded the present value of lost future pension benefits, the trial court went beyond the argument in the *Rotolo* case to reduce the total award. The appeals court modified this verdict and adjusted the award upward to allow the disability pension only as a full offset to the regular pension loss, i.e., a "pension to pension" offset. In *Firmes v. Chase Manhattan*, 2008, (PI-Non-FELA), a potential collateral source offset from Social Security Disability Insurance (SSDI), in effect a disability pension for which plaintiff was eligible but had not yet applied, posed a dilemma for defense. If defense filed for a collateral source offset hearing before the application was made, it probably would have been disallowed because no such offset was yet in existence. However, defense waited too long by filing a post-trial motion for the offset hearing. Once plaintiff had begun receiving SSDI benefits, this post-trial motion was denied as being "untimely." It is unclear whether the same dilemma and results would be as likely to apply if this were a private disability pension case, given the typically shorter lead times for approval in cases involving private pensions as opposed to SSDI. Finally, in *Cohen v. Cuomo*, 2009 (PI-Non-FELA), plaintiff's expert relied upon a key information source that defense claimed was hearsay. Defense prevailed because the expert could not provide "foundational support for the use of hearsay evidence."

IV.   Comparison of Methods Accounting for Disability Pensions as Offsets to Lost Regular Pensions

It is clear from listserv and conference discussions among forensic economists that opinions differ on how to account for disability pensions in PI cases where the loss of a regular defined benefit pension is part of the damage calculation. The most favorable methods to defense in PI cases have been sanctioned by courts in the *Rotolo* and *Oden* cases (appeals courts in CA and NY, respectively). In these two cases, courts have permitted disability pension income entered into

evidence from the time of injury such that its present value might at most fully offset the loss of a regular pension, and not allow any offset of lost future earnings. However, limited case law elsewhere has left FEs, and perhaps also attorneys, uncertain of how to apply the CSR in other jurisdictions.

As an alternative to the method sanctioned in *Rotolo* and *Oden* and in use by some FEs, a pension benefit income offset can be calculated as the difference between regular pension benefits less projected disability pension benefits applied over the expected retirement period. This method is based on the idea that inclusion of disability pension income earned during the period of lost, regular earnings (due to injury or death) is by definition contrary to the CSR. In the discussion and examples that follow, this method is noted as the Alternative Method. Two detailed examples of such an Alternative Method are presented using this method in the following section. It involves four steps:

(1) Calculate the regular pension earned by an injured plaintiff up to the date of injury as the disability pension periodic benefit amount (i.e., either the monthly or annual benefit basis);

(2) Assuming that the lost pension has a cost of living adjustment (COLA), the disability pension periodic benefit amount is increased by an assumed general rate of inflation until an appropriate retirement age, had the plaintiff not been injured, e.g., to age 65. (In the examples to follow, an assumed COLA is applied yearly, something that often does not happen but for simplicity this aspect is assumed here);

(3) Project the disability pension over time beginning from same uninjured expected retirement age as for the lost regular pension, with continued growth for both pensions at future inflation rates represented by the same annual COLA. The annual net pension loss is obtained by deducting the disability pension from the lost regular pension over the period from the uninjured expected retirement age through life expectancy. Yearly net pension differences (regular less disability) are discounted back to present value.

(4) Since employee contributions via payroll deductions are usually required to obtain a regular pension, these contributions may be netted against lost future earnings. But if one just wants to compare net pension losses between the Rotolo-Oden Method and this Alternative Method and ignore lost future earnings, the present value of these employee contributions would need to be counted as a reduction in the net pension loss.

The logic behind this alternative method is that it ignores any source of income not provided by the defendant that is replacing an injured plaintiff's earnings during his working life. The disability pension that would be received during the working life of the now-injured plaintiff is obviously replacing his lost earnings; such disability payments are usually made by a third-party insurer or a government entity that is considered separate from the employer.

Three separate arguments have been offered against this alternative approach:

(1) Quoting the *Rotolo* court, not fully accounting for the disability pension would result in "triple compensation," *i.e.*, lost income, lost regular retirement benefits, and receipt of actual disability retirement benefits, which it called an "inequitable result;"

(2) Disability pensions are conceptually the same as early retirement pensions in that they represent an "actuarial adjustment" by making smaller pension payments over a longer period of time. Doing so, they roughly equalize the present value of the same pension, and thus should not be viewed as a collateral source benefit that would be received by the early retiree. Social Security is such a system, in which early retirement is offered as a choice. Moreover, upon reaching full Social Security retirement age, someone who had been receiving SSDI benefits continues receiving the same dollar amount of benefits but their benefit simply becomes referred to as the regular Social Security Retirement benefit;

(3) A simple and direct argument is that a forensic economist would only ignore pension payments received between the incident date and the likely date of retirement, but for the incident, if there were some legal requirement to do so. Examples of a "legal requirement" might include (a) the retaining attorney's insistence, given counsel's expertise on such matters relative to that of an FE; (b) a very specific court decision; or (c) a statutory requirement.

How different the results might be using the method sanctioned in the *Rotolo-Oden* decisions vs. the Alternative Method just discussed is examined below. This is done using two different pension models, three different sets of case facts regarding injury, and two different methods of netting disability pensions against lost regular pensions, as follows:

- Two different pension system models (Cases 1 and 2):
  - Federal Employee Retirement System (FERS);

- Maryland's Reformed Contributory Benefit System applicable to new hires as of July 1, 2011, with <u>Ordinary</u> Disability Retirement benefits.
- Three different sets of case facts regarding injury (Cases a, b, and c). In all three cases the employee is assumed to have started work on January 1, his 25th birthday, with an expected retirement age of 65 and a life expectancy of 85 years:
  - Case a: Base Case No Injury, Normal Retirement;
  - Case b: Injured at 55 (on day of birthday); Disability Retirement with 30 years of service;
  - Case c: Injured at age 35 (on day of birthday); Disability Retirement with 10 years of service;
- Two different sets of CSR rules, i.e., two methods of netting disability pensions against lost regular pensions:
  - Rotolo-Oden Method (with a maximum offset equal to the regular pension value, since no excess disability pension can be applied against lost earnings. In other words: Net pension loss = Max [(Present value of all expected regular pension benefits – Present value of all expected disability benefits), zero]. Note: The annual pension contributions or premiums required to remain eligible for a regular pension are included in the present value of the expected regular pension;
  - Alternative Method described above (i.e., calculate disability pension earned through date of injury, grown only at the assumed inflation rate or COLA until pre-injury expected retirement date, and then begin netting disability pension against lost regular pension from pre-injury retirement age through life expectancy, both growing at the same COLA assumed to be applicable, and then discounted back to present value). Note: unlike under the Rotolo-Oden Method, under this Alternative Method, the annual pension contributions required to remain eligible for a regular pension are included as an offset to lost earnings.

With these parameters, we have four paired sets of results, with regular pension loss offset by disability pensions under two different CSR rules. The detailed cash flows generated for the individual cases are shown in six tables in two separate Appendices: Appendix B has three tables for Cases 1a, 1b, and 1c (under FERS); and Appendix C has three tables for Cases 2a, 2b, and 2c (under the Maryland Reformed Contributory Pension system assuming the <u>Ordinary</u> Disability Retirement formula). The three tables in each appendix include one table representing a no-injury regular retirement pension

and the other two tables representing disability retirement at two different times, one at age 35 and the other at age 55. By pairing the no-injury retirement pension with each of the two age-specific disability retirement pensions, there are four sets of net pension loss results, for each of the two retirement systems being examined. The results are displayed in four separate tables of case pairings, Tables 1–4, discussed and presented below.

Comparisons Based on FERS Retirement System, Disabled on 55th Birthday (Table 1, Cases 1a vs. 1b)

Table 1 compares the FERS retirement system pensions under both CSR methods for the hypothetical employee who either worked until age 65 and retired (Case 1a) vs. having been disabled and retired on his 55th birthday (Case 1b). For federal employees with at least 20 years of service in FERS and at age 62 or older, regular retirement pensions are calculated by multiplying 1.1% times the number of years of creditable service to the "High-3 Average Salary" ("the highest average basic pay earned during any 3 consecutive years of service" https://www.opm.gov/retirement-services/fers-information).[3] The hypothetical employee is assumed to work exactly 40 years, both beginning employment and retiring on his or her birthday (ages 25 to 65), starting at a salary of $50,000 per year, with step rate increases spread over 18 years (with magnitude and timing of between-step salary increases based on OPM data (OPM, 2018) plus 2% COLAs assumed over all years. Given these assumptions, the regular retirement annuity at age 65 would be **$60,398.22** (= 1.1% x 40 x average three highest salaries of $137,268.68). The regular retirement pension is derived and shown in Appendix B, Table App. B-1a, Column 5.

In Table 1, Columns 2-8 are based on the Rotolo-Oden Method of disability pension offset. In Column 3, the amounts shown include the lost regular pension that without injury would have begun at age 65 less the annual pension premiums at 4.4% of salary while still working. (The values shown here only begin at age 55, since that is when the period of disability is assumed to begin in Case 1b.) The **-$5,154** shown in Table 1, Column 3 at age 55, under Case 1a for regular retirement, is calculated as the required employee charge of 4.4% (for FERS hires beginning in 2014) x the salary that would be earned at age 55, **$117,142.19** (shown in Appendix B, Table App. B-1a, Column 3). These annual employee contributions (or pension premiums) cease at age 65, when the regular retirement pension cited above begins.

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[3] See Disability Retirement Computation via link: https://www.opm.gov/retirement-services/fers-information/computation/

Table 1. FERS Retirement Pension; Rotolo/Oden Method and Alternative Method of Applying Disability Pension Offset:

Case 1a v. 1b - Lost Regular Retirement Pension (1a), Offset with Disability Pension, Retire at 55 w/ 30 Years of Service (1b)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Rotolo-Oden Method of Disability Pension Offset						Alternative Method of Disability Pension Offset							
		Injured at 55: Case 1a vs. Case 1b						Altern. Method: Offset Reg. Pens. w/ Earned Pens. to Disab. Date, Grow @ COLA; net @ Ret.				PV of Employee Contrib. (1) (47,911)			Regular pension
		Case 1a	Case 1b		PV from Disability Date		Net Pension		Case 1a	Case 1b		PV from Exp. Ret. Date		Net Pension	earned to
Age @ Beg yr	Yrs to disc	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Reg. Pens. Less	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	Yrs to disc	Lost Reg. Pens. Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Regular pension	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	disability date w/ age 62 recast
55	1	(5,154)	47,149	0.97087	(5,004)	45,776	(50,780)	1			0.97087	-	-		33,782
56	2	(5,257)	33,782	0.94260	(4,956)	31,843	(36,799)	2			0.94260	-	-		34,458
57	3	(5,362)	34,458	0.91514	(4,907)	31,534	(36,441)	3			0.91514	-	-		35,147
58	4	(5,470)	35,147	0.88849	(4,860)	31,228	(36,088)	4			0.88849	-	-		35,850
59	5	(5,579)	35,850	0.86261	(4,813)	30,925	(35,737)	5			0.86261	-	-		36,567
60	6	(5,691)	36,567	0.83748	(4,766)	30,624	(35,390)	6			0.83748	-	-		37,299
61	7	(5,805)	37,299	0.81309	(4,720)	30,327	(35,047)	7			0.81309	-	-		38,045
62	8	(5,921)	52,646	0.78941	(4,674)	41,559	(46,233)	8			0.78941	-	-		52,646
63	9	(6,039)	53,699	0.76642	(4,628)	41,156	(45,784)	9			0.76642	-	-		53,699
64	10	(6,160)	54,773	0.74409	(4,583)	40,756	(45,340)	10			0.74409	-	-		54,773
65	11	60,398	55,868	0.72242	43,633	40,360	3,272	11	60,398	55,868	0.72242	43,633	40,360	3,272	55,868
66	12	61,606	56,986	0.70138	43,209	39,969	3,241	12	61,606	56,986	0.70138	43,209	39,969	3,241	56,986
67	13	62,838	58,125	0.68095	42,790	39,581	3,209	13	62,838	58,125	0.68095	42,790	39,581	3,209	58,125
68	14	64,095	59,288	0.66112	42,374	39,196	3,178	14	64,095	59,288	0.66112	42,374	39,196	3,178	59,288
69	15	65,377	60,474	0.64186	41,963	38,816	3,147	15	65,377	60,474	0.64186	41,963	38,816	3,147	60,474
70	16	66,685	61,683	0.62317	41,556	38,439	3,117	16	66,685	61,683	0.62317	41,556	38,439	3,117	61,683
71	17	68,018	62,917	0.60502	41,152	38,066	3,086	17	68,018	62,917	0.60502	41,152	38,066	3,086	62,917
72	18	69,379	64,175	0.58739	40,753	37,696	3,056	18	69,379	64,175	0.58739	40,753	37,696	3,056	64,175
73	19	70,766	65,459	0.57029	40,357	37,330	3,027	19	70,766	65,459	0.57029	40,357	37,330	3,027	65,459
74	20	72,181	66,768	0.55368	39,965	36,968	2,997	20	72,181	66,768	0.55368	39,965	36,968	2,997	66,768
75	21	73,625	68,103	0.53755	39,577	36,609	2,968	21	73,625	68,103	0.53755	39,577	36,609	2,968	68,103
76	22	75,098	69,465	0.52189	39,193	36,253	2,939	22	75,098	69,465	0.52189	39,193	36,253	2,939	69,465
77	23	76,600	70,855	0.50669	38,812	35,901	2,911	23	76,600	70,855	0.50669	38,812	35,901	2,911	70,855
78	24	78,132	72,272	0.49193	38,436	35,553	2,883	24	78,132	72,272	0.49193	38,436	35,553	2,883	72,272
79	25	79,694	73,717	0.47761	38,062	35,208	2,855	25	79,694	73,717	0.47761	38,062	35,208	2,855	73,717
80	26	81,288	75,191	0.46369	37,693	34,866	2,827	26	81,288	75,191	0.46369	37,693	34,866	2,827	75,191
81	27	82,914	76,695	0.45019	37,327	34,527	2,800	27	82,914	76,695	0.45019	37,327	34,527	2,800	76,695
82	28	84,572	78,229	0.43708	36,964	34,192	2,772	28	84,572	78,229	0.43708	36,964	34,192	2,772	78,229
83	29	86,264	79,794	0.42435	36,606	33,860	2,745	29	86,264	79,794	0.42435	36,606	33,860	2,745	79,794
84	30	87,989	81,390	0.41199	36,250	33,531	2,719	30	87,989	81,390	0.41199	36,250	33,531	2,719	81,390
85	31	89,749	83,017	0.39999	35,898	33,206	2,692	31	89,749	83,017	0.39999	35,898	33,206	2,692	83,017
Sum					784,660	1,125,856	(341,197)					832,571	770,128	62,443	

PV of Employee Pension Contributions if Still Working:	(47,911)
Net Pension Loss Under Altermnative Method	14,532

(1) In Alternative method, one way to reflect required employee contributions while working is to net them against lost future earnings. Total contributions equals sum of col. 6 until age 65.

Disability retirement computations depend upon whether someone is at least 62 years old at retirement <u>or</u> meets the age and service requirements for "immediate voluntary retirement," which is at least ten years of service. For Case 1b, the employee is under 62 but is not eligible for immediate voluntary retirement, which only applies for employees age 55 if they were born before 1948. Allowing Case 1b to be more relevant for younger employees, the disability computation changes. If ineligible for "immediate voluntary retirement" based on age, FERS provides a first-year disability pension of 60% of the "High-3 Average Salary" minus 100% of the Social Security benefit. In the second year the pension would adjust downward, equaling 40% of the "High-3 Average Salary" minus 60% of the Social Security benefit, with annual COLAs then applied. However, in the second year, the disabled employee has the option of choosing the "earned annuity at 1% of the "High-Three Average Salary," also with subsequent years applicable for annual COLAs.

For Case 1b, the annual pension that he would earn at age 55 would be **$47,149.48** (shown in Appendix B, Table App. B-1b, Column 11 and read into Table 1 Column 4). In the second year, at age 56, the more advantageous earned annuity choice is applied. The second year disability pension equals **$33,782.44** at 1% of the "High Three Average Salary" for 30 years of service. This is slightly higher than the 40% of High-Three Average Salary" minus 100% of the Social Security benefit, and so this becomes the second year pension. Subsequent adjustments are assumed to increase at the 2% COLA for all years. Finally, the age 62 pension annuity recast is applied, as explained above. The pension formula includes the years on disability in the total service years, as well as the higher 1.1% multiplier, applied to the three year average salary from ages 59-61 of $129,351.35. Hence, by age 62, the disability pension becomes **$52,646** (= $129,351.35 x .011 × 37), shown in Table 1, Column 4, and Appendix B Table B-1b, column 11. In subsequent years, the pension grows with 2% annual COLAs.

Discounting both pension streams at 3% per year to the beginning of year 1, when the employee turns <u>55</u> years old, results in present values for the lost regular pension (with the employee premium paid until age 65) of **$784,660** vs. **$1,125,856** for the disability pension, shown in Table 1, at the bottom of Columns 6 and 7. The difference, **-$341,197**, is shown at the bottom of Column 8. Since the Rotolo-Oden Method only allows disability pensions to offset regular pensions, however, the net pension loss that would be allowed is zero. Loss of earnings/earnings capacity would not be offset by any net positive pension differential greater than the regular pension.

The Alternative Method of calculating a net pension loss has a very different result, with calculations shown in Table 1, Columns 9-16. We have the same regular pension amounts by year in current dollars, shown in Columns 3 and 10, but with Column 10 excluding the employee's pension contributions, which are applied separately as explained above. The **$60,398** in Table 1, Column 10, is the first year of regular pension losses, the same amount as with the Rotolo-Oden Method.

The Alternative Method disability pension calculation is shown in Column 16, but is not assumed to begin offsetting the regular pension loss until the expected pre-injury retirement at age 65. By age 62 the recast pension is the same under both methods, as is the disability pension at age 65 when it starts to count as an offset. The disability pension at age 65 results from the age 62 recast pension growing by three more years at the 2% assumed COLAs, reaching **$55,868** per year under both pension methods. Both the regular and disability pension streams are assumed to continue growing at 2% COLAs from age 65 through age 85, and then are discounted to present value at 3%

per year. The end results using the Alternative Method of applying the CSR are **$832,571** for Case 1a but only **$770,128** for Case 1b. Using the Alternative Method of applying the CSR would add the difference, **$62,443,** to damages attributed to net pension loss, but this is before accounting for employee pension contributions subsequent to the injury at age 55 that would have been required through the expected retirement age.

Therefore, for a more complete comparison, we have to account for the present value of employee contributions until retirement in order to have become eligible for a regular pension at the expected retirement age of 65. Accounting for the PV of these employee contributions reduces the effective Alternative Method of net pension loss by **$47,911** to **$14,532**, shown at the bottom of Table 1, Column 15. The employee's pension contribution of $47,911 is simply the present value of the difference in regular pension loss between the Rotolo-Oden and Alternative Methods, $784,660 - $832,571, shown in Table 1, Columns 6 and 13. For a damage award calculation, the Alternative Method would provide a **$14,532 higher damage award**, or net pension loss, between the two methods, other things being equal, as shown at the bottom of Table 1, Column 15. That result is because using the Rotolo-Oden Method, the net pension loss would be capped at zero rather than be considered a net gain, but the employee pension contributions would not reduce whatever the future earnings loss might be as it would under the Alternative Method.

Comparisons Based on FERS Retirement System, Disabled on 35th Birthday (Table 2, Cases 1a vs. 1c)

Table 2 compares the FERS retirement system pensions under both CSR methods for the hypothetical employee who either both worked until age 65 and retired vs. having been disabled and retired on his 35th birthday. Case 1a results in current dollars are constructed in the same way in Table 2 as in Table 1. In Table 2, Column 3 at age 35, under Case 1a for regular retirement, the **-$3,207** shown is calculated as the required employee pension contribution of 4.4% x the salary that would be earned at age 35, or **$72,882.18** (shown in Appendix B Table App. B-1a, Column 3). His regular retirement pension at age 65 is the same **$60,398** shown in Table 2 as in Table 1, since his regular retirement is at the same age of 65 in both tables, absent a disabling injury.

In Table 2, Columns 2-8 are again based on the Rotolo-Oden Method of disability pension offset. As with Case 1b, in Case 1c the disabled retiree is also not eligible for a pension based on qualifying for immediate voluntary retirement. Absent this qualification, as with Case 1b, the disability formula again provides a first-year receipt of

Table 2. FERS Retirement Pension; Rotolo/Oden Method and Alternative Method of Applying Disability Pension Offset:

Case 1a v. 1c - Lost Regular Retirement Pension (1a), Offset with Disability Pension, Retire at 35 w/ 10 Years of Service (1c)

		Rotolo-Oden Method of Disability Pension Offset						Alternative Method of Disability Pension Offset							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Injured at 35: Case 1a vs. Case 1c							Altern. Method: Offset Reg. Pens. w/ Earned Pens. to Disab. Date, Grow @ COLA; net @ Ret.				PV of Employee Contrib. (1) (89,193)			Regular pension
		Case 1a	Case 1c		PV from Disability Date		Net Pension		Case 1a	Case 1c		PV from Exp. Ret. Date		Net Pension	earned to
Age @	Yrs to	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Reg. Pension	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	Yrs to	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Regular pension	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	disability date w/ age
Beg yr	disc							disc							62 recast
35	1	(3,207)	36,120	0.97087	(3,113)	35,068	(38,182)	1			0.97087			-	6,880
36	2	(3,271)	24,424	0.94260	(3,083)	23,022	(26,105)	2			0.94260			-	7,018
37	2	(3,427)	24,913	0.94260	(3,230)	23,483	(26,713)	2			0.94260			-	7,158
38	3	(3,496)	25,411	0.91514	(3,199)	23,255	(26,454)	3			0.91514			-	7,301
39	4	(3,566)	25,919	0.88849	(3,168)	23,029	(26,197)	4			0.88849			-	7,447
40	5	(3,733)	26,438	0.86261	(3,220)	22,805	(26,026)	5			0.86261			-	7,596
41	6	(3,808)	26,966	0.83748	(3,189)	22,584	(25,773)	6			0.83748			-	7,748
42	7	(3,884)	27,506	0.81309	(3,158)	22,365	(25,523)	7			0.81309			-	7,903
43	8	(4,064)	28,056	0.78941	(3,208)	22,147	(25,356)	8			0.78941			-	8,061
44	9	(4,145)	28,617	0.76642	(3,177)	21,932	(25,110)	9			0.76642			-	8,222
45	10	(4,228)	29,189	0.74409	(3,146)	21,720	(24,866)	10			0.74409			-	8,387
46	11	(4,313)	29,773	0.72242	(3,116)	21,509	(24,624)	11			0.72242			-	8,555
47	12	(4,399)	30,368	0.70138	(3,085)	21,300	(24,385)	12			0.70138			-	8,726
48	13	(4,487)	30,976	0.68095	(3,055)	21,093	(24,149)	13			0.68095			-	8,900
49	14	(4,577)	31,595	0.66112	(3,026)	20,888	(23,914)	14			0.66112			-	9,078
50	15	(4,668)	32,227	0.64186	(2,996)	20,685	(23,682)	15			0.64186			-	9,260
51	16	(4,762)	32,872	0.62317	(2,967)	20,485	(23,452)	16			0.62317			-	9,445
52	17	(4,857)	33,529	0.60502	(2,939)	20,286	(23,224)	17			0.60502			-	9,634
53	18	(4,954)	34,200	0.58739	(2,910)	20,089	(22,999)	18			0.58739			-	9,827
54	19	(5,053)	34,884	0.57029	(2,882)	19,894	(22,776)	19			0.57029			-	10,023
55	20	(5,154)	35,582	0.55368	(2,854)	19,701	(22,554)	20			0.55368			-	10,223
56	21	(5,257)	36,293	0.53755	(2,826)	19,509	(22,335)	21			0.53755	-	-	-	10,428
57	22	(5,362)	37,019	0.52189	(2,799)	19,320	(22,119)	22			0.52189	-	-	-	10,637
58	23	(5,470)	37,759	0.50669	(2,771)	19,132	(21,904)	23			0.50669	-	-	-	10,849
59	24	(5,579)	38,515	0.49193	(2,745)	18,947	(21,691)	24			0.49193	-	-	-	11,066
60	25	(5,691)	39,285	0.47761	(2,718)	18,763	(21,481)	25			0.47761	-	-	-	11,288
61	26	(5,805)	40,071	0.46369	(2,692)	18,581	(21,272)	26			0.46369	-	-	-	11,513
62	27	(5,921)	52,646	0.45019	(2,665)	23,701	(26,366)	27			0.45019	-	-	-	52,646
63	28	(6,039)	53,699	0.43708	(2,640)	23,471	(26,110)	28			0.43708	-	-	-	53,699
64	29	(6,160)	54,773	0.42435	(2,614)	23,243	(25,857)	29			0.42435	-	-	-	54,773
65	30	60,398	55,868	0.41199	24,883	23,017	1,866	30	60,398	55,868	0.41199	24,883	23,017	1,866	55,868
66	31	61,606	56,986	0.39999	24,642	22,794	1,848	31	61,606	56,986	0.39999	24,642	22,794	1,848	56,986
67	32	62,838	58,125	0.38834	24,402	22,572	1,830	32	62,838	58,125	0.38834	24,402	22,572	1,830	58,125
68	33	64,095	59,288	0.37703	24,166	22,353	1,812	33	64,095	59,288	0.37703	24,166	22,353	1,812	59,288
69	34	65,377	60,474	0.36604	23,931	22,136	1,795	34	65,377	60,474	0.36604	23,931	22,136	1,795	60,474
70	35	66,685	61,683	0.35538	23,699	21,921	1,777	35	66,685	61,683	0.35538	23,699	21,921	1,777	61,683
71	36	68,018	62,917	0.34503	23,468	21,708	1,760	36	68,018	62,917	0.34503	23,468	21,708	1,760	62,917
72	37	69,379	64,175	0.33498	23,241	21,498	1,743	37	69,379	64,175	0.33498	23,241	21,498	1,743	64,175
73	38	70,766	65,459	0.32523	23,015	21,289	1,726	38	70,766	65,459	0.32523	23,015	21,289	1,726	65,459
74	39	72,181	66,768	0.31575	22,792	21,082	1,709	39	72,181	66,768	0.31575	22,792	21,082	1,709	66,768
75	40	73,625	68,103	0.30656	22,570	20,878	1,693	40	73,625	68,103	0.30656	22,570	20,878	1,693	68,103
76	41	75,098	69,465	0.29763	22,351	20,675	1,676	41	75,098	69,465	0.29763	22,351	20,675	1,676	69,465
77	42	76,600	70,855	0.28896	22,134	20,474	1,660	42	76,600	70,855	0.28896	22,134	20,474	1,660	70,855
78	43	78,132	72,272	0.28054	21,919	20,275	1,644	43	78,132	72,272	0.28054	21,919	20,275	1,644	72,272
79	44	79,694	73,717	0.27237	21,706	20,078	1,628	44	79,694	73,717	0.27237	21,706	20,078	1,628	73,717
80	45	81,288	75,191	0.26444	21,496	19,884	1,612	45	81,288	75,191	0.26444	21,496	19,884	1,612	75,191
81	46	82,914	76,695	0.25674	21,287	19,690	1,597	46	82,914	76,695	0.25674	21,287	19,690	1,597	76,695
82	47	84,572	78,229	0.24926	21,080	19,499	1,581	47	84,572	78,229	0.24926	21,080	19,499	1,581	78,229
83	48	86,264	79,794	0.24200	20,876	19,310	1,566	48	86,264	79,794	0.24200	20,876	19,310	1,566	79,794
84	49	87,989	81,390	0.23495	20,673	19,123	1,550	49	87,989	81,390	0.23495	20,673	19,123	1,550	81,390
85	50	89,749	83,017	0.22811	20,472	18,937	1,535	50	89,749	83,017	0.22811	20,472	18,937	1,535	83,017
Sum					385,610	1,091,197	(705,587)					474,803	439,193	35,610	
								PV of Employee Pension Contributions if Still Working:						(89,193)	
								Net Pension Loss Under Altermnative Method						(53,583)	

(1) In Alternative method, one way to reflect required employee contributions while working is to net them against lost future earnings. Total contributions equals sum of col. 6 until age 65.

60% of the "High-3 Average Salary" minus 100% of the Social Security benefit, and subsequent years receipt of 40% of the "High-3 Average Salary" minus 60% of the Social Security benefit. However, in Case 1c, unlike in Case 1b, the earned annuity available in the second year of disability pension is less attractive, given the much shorter number of years of service earned prior to becoming disabled. Thus, the Case 1C pension at age 35 is calculated to be **$36,120**, and continues at age 36 with the standard disability formula for the second

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year, calculated to be **$24,424**. These are both shown in Table 2 Column 4.

For Case 1c, the age 62 pension annuity is recast to $52,646. This amount, shown in Column 4, is the same as in Case 1b, representing the annuity that would have been received if the person had been working until the day before his 62 birthday and then retired. It is based on 37 years, 10 years of actual service and 27 years since receiving disability pension benefits (from age 35 to 62 in the total service years), as well as the higher 1.1% multiplier. This result is shown in Table 2, Column 4, and Appendix B Table B-1c, Column 17.

Discounting both pension streams at 3% per year to the beginning of year 1, when the employee turns 35 years old, results in present values for the lost regular pension (with the employee premium paid until age 65) of **$385,610** vs. **$1,091,197** for the disability pension, shown in Columns 6 and 7. The difference, **-$705,587**, is shown at the bottom of Table 2, Column 8. Since the Rotolo-Oden Method only allows disability pensions to offset regular pensions, the net pension loss that would be allowed is zero. Whatever the damages amount calculated for earnings/earning capacity loss would remain unchanged.

The Alternative Method of calculating a net pension loss again has very different results in Table 2 from those in Table 1, with calculations shown Columns 9-16. We begin with the same regular pension amounts at age 65 by year in current dollars in both Tables 1 and 2, shown again in Table 2, Columns 3 and 10, but with Column 10 again excluding the employee's pension contributions after injury which are applied separately under the Alternative Method. The **$60,398** in Table 2, Column 10 is the same first year of regular pension losses beginning at age 65 as it was in Table 1, but now it's 30 years rather than 10 years after the disabling injury.

The Alternative Method disability pension value is recast at age 62, and is the same **$52,646** in Case 1c as in Case 1b. Again, under the Alternative Method, the first year of pension offset begins at age 65, and so applying three more years of 2% COLAs we obtain the first year of disability pension offset as **$55,868.** Both the regular and disability pension streams are assumed to continue to grow at 2% COLAs from age 65 through age 85, and then are discounted to present value at 3% per year. The end results using the Alternative Method of applying the CSR in Case 1a vs. Case 1c are **$474,803** for PV of the regular retirement pension and **$439,193** for the disability retirement pension. Using the Alternative Method of applying the CSR would add the difference, $ **$35,610** to damages attributed to net pension loss, but before accounting for employee pension premiums subsequent to the injury at age 35.

As noted previously, for a more complete comparison, we again have to account for the present value of employee contributions until retirement in order to have become eligible for a regular pension at the expected retirement age of 65. Accounting for the PV of these employee contributions reduces the effective Alternative Method of net pension loss by **$89,193.** This is a much larger reduction than is the case of being disabled at age 55, because in comparing results if disabled at age 35, there are an extra 20 years of required pension premiums**.** Hence, the Effective PV under the Alternative Method, which includes the impact of employee pension contributions on loss of earning capacity, becomes -**$53,583**, shown at the bottom of Table 2, Column 15. For a damage award calculation that includes pension premiums as part of the net pension loss, there would be no difference between methods for this relatively young disabled retiree, since both methods would result in negative pension loss and hence be zeroed out. However, keeping with the Alternative Method assumed here of applying pension premiums to the net lost future earnings stream, the Alternative Method would produce a lower total net loss than with the Rotolo-Oden Method, -$53,583. The total net loss is lower under the Alternative Method as defined here because the pension contributions more than offset the direct pension loss, and hence reduce the net earnings loss, whereas with the Rotolo-Oden Method, the negative net pension loss which includes the employee contributions is simply forced to be zero.

Comparisons Based on Maryland Reformed Contributory Retirement System, with Ordinary Disability Benefits, Disabled on 55th Birthday (Table 3, Cases 2a vs. 2b)

Table 3 compares the Maryland Reformed Contributory Retirement System, with <u>Ordinary</u> Disability Retirement benefits under both CSR methods for the hypothetical employee who both worked until age 65 and retired vs. having been disabled and retired on his 55th birthday. For Maryland state employees under this system, regular retirement pensions are calculated by multiplying 1.5% times the average of the five highest consecutive annual salaries, i.e., "Average Final Compensation" or AFC times Years of Credit for the Annual Basic Allowance, with no reduction if the employee is at least 65 years old and creditable service based on "actual service, plus years of service projected to age 65" (MD, pp. 34-35). The same hypothetical employee without injury is assumed to work exactly 40 years, both beginning and retiring on his birthday (ages 25 to 65). He is assumed to start earning $50,000 per year, with step rate increases spread over 20 years (the magnitude of which the between-step salary increases are based on State of Maryland Standard Salary Schedule (State of

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Table 3. MD Ordinary Disab. Pension; Rotolo/Oden Method and Alternative Method of Applying Disability Pension Offset:

Case 2a v. 2b - Lost Regular Retir't Pension (2a), Offset with Ordinary Disab. Pension, Retire at 55 w/ 30 Years of Service (2b)

		Rotolo-Oden Method of Disability Pension Offset						Alternative Method of Disability Pension Offset							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Injured at 55: Case 2a vs. Case 2b							Altern. Method: Offset Reg. Pens. w/ Earned Pens. to Disab. Date, Grow @ COLA; net @ Ret.				PV of Employee Contrib. (1) (93,852)			
		Case 2a	Case 2b		PV from Disability Date		Net Pension		Case 2a	Case 2b		PV from Exp. Ret. Date		Net Pension	Regular pension
Age @ Beg yr	Yrs to disc	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Reg. Pens. Less Contrib.	PV Gain Disab. Pension	Loss (PV), Regular Less	Yrs to disc	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Regular pension	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	earned to disability date
55	1	(10,097)	81,583	0.97087	(9,803)	79,207	(89,010)	1			0.97087	-	-	-	81,583
56	2	(10,299)	83,215	0.94260	(9,707)	78,438	(88,146)	2			0.94260	-	-	-	83,215
57	3	(10,505)	84,879	0.91514	(9,613)	77,677	(87,290)	3			0.91514	-	-	-	84,879
58	4	(10,715)	86,577	0.88849	(9,520)	76,923	(86,442)	4			0.88849	-	-	-	86,577
59	5	(10,929)	88,309	0.86261	(9,427)	76,176	(85,603)	5			0.86261	-	-	-	88,309
60	6	(11,148)	90,075	0.83748	(9,336)	75,436	(84,772)	6			0.83748	-	-	-	90,075
61	7	(11,371)	91,876	0.81309	(9,245)	74,704	(83,949)	7			0.81309	-	-	-	91,876
62	8	(11,598)	93,714	0.78941	(9,156)	73,978	(83,134)	8			0.78941	-	-	-	93,714
63	9	(11,830)	95,588	0.76642	(9,067)	73,260	(82,327)	9			0.76642	-	-	-	95,588
64	10	(12,066)	97,500	0.74409	(8,979)	72,549	(81,528)	10			0.74409	-	-	-	97,500
65	11	99,450	99,450	0.72242	71,845	71,845	-	11	99,450	99,450	0.72242	71,845	71,845	-	99,450
66	12	101,439	101,439	0.70138	71,147	71,147	-	12	101,439	101,439	0.70138	71,147	71,147	-	101,439
67	13	103,468	103,468	0.68095	70,456	70,456	-	13	103,468	103,468	0.68095	70,456	70,456	-	103,468
68	14	105,537	105,537	0.66112	69,772	69,772	-	14	105,537	105,537	0.66112	69,772	69,772	-	105,537
69	15	107,648	107,648	0.64186	69,095	69,095	-	15	107,648	107,648	0.64186	69,095	69,095	-	107,648
70	16	109,801	109,801	0.62317	68,424	68,424	-	16	109,801	109,801	0.62317	68,424	68,424	-	109,801
71	17	111,997	111,997	0.60502	67,760	67,760	-	17	111,997	111,997	0.60502	67,760	67,760	-	111,997
72	18	114,236	114,236	0.58739	67,102	67,102	-	18	114,236	114,236	0.58739	67,102	67,102	-	114,236
73	19	116,521	116,521	0.57029	66,450	66,450	-	19	116,521	116,521	0.57029	66,450	66,450	-	116,521
74	20	118,852	118,852	0.55368	65,805	65,805	-	20	118,852	118,852	0.55368	65,805	65,805	-	118,852
75	21	121,229	121,229	0.53755	65,166	65,166	-	21	121,229	121,229	0.53755	65,166	65,166	-	121,229
76	22	123,653	123,653	0.52189	64,534	64,534	-	22	123,653	123,653	0.52189	64,534	64,534	-	123,653
77	23	126,126	126,126	0.50669	63,907	63,907	-	23	126,126	126,126	0.50669	63,907	63,907	-	126,126
78	24	128,649	128,649	0.49193	63,287	63,287	-	24	128,649	128,649	0.49193	63,287	63,287	-	128,649
79	25	131,222	131,222	0.47761	62,672	62,672	-	25	131,222	131,222	0.47761	62,672	62,672	-	131,222
80	26	133,846	133,846	0.46369	62,064	62,064	-	26	133,846	133,846	0.46369	62,064	62,064	-	133,846
81	27	136,523	136,523	0.45019	61,461	61,461	-	27	136,523	136,523	0.45019	61,461	61,461	-	136,523
82	28	139,254	139,254	0.43708	60,865	60,865	-	28	139,254	139,254	0.43708	60,865	60,865	-	139,254
83	29	142,039	142,039	0.42435	60,274	60,274	-	29	142,039	142,039	0.42435	60,274	60,274	-	142,039
84	30	144,879	144,879	0.41199	59,688	59,688	-	30	144,879	144,879	0.41199	59,688	59,688	-	144,879
85	31	147,777	147,777	0.39999	59,109	59,109	-	31	147,777	147,777	0.39999	59,109	59,109	-	147,777
Sum					1,277,031	2,129,231	(852,200)					1,370,883	1,370,883	-	

PV of Employee Pension Contributions if Still Working: (93,852)
Net Pension Loss Under Alternative Method (93,852)

(1) In Alternative method, one way to reflect required employee contributions while working is to net them against lost future earnings. Total contributions equals sum of col. 6 until age 65.

Maryland, effective July 1, 2016, apparently unchanged as of July 1, 2018), http://www.dbm.maryland.gov/employees/Pages/SalaryInformation.aspx and then select http://www.dbm.maryland.gov/employees/Documents/SalaryInfo/Standard.pdf), plus 2% annual COLAs assumed over all years (however unrealistic that has been in practice, but assumed here for consistency with the FERS examples). Given these assumptions, the regular retirement annuity at age 65 would be **$99,449.74** (= 1.5% x 40 x high five average of $165,749.56). The regular retirement pension is derived and shown in Appendix C, Table App. C-2a, Column 5.

In Table 3, Columns 2-8 are based on the Rotolo-Oden Method of disability pension offset. In Column 3, the amounts shown include the lost regular pension that without disabling injury would have begun at age 65. The annual pension premiums at 7% of salary are applied for the prior years while he is assumed to be still working, but shown here only beginning at age 55, since that is when the period of disability is

assumed to begin in Case 2b. The **-$10,097** shown in Table 3, Column 3, at age 55, under Case 2a for regular retirement, is calculated as the required employee charge of 7% beginning with new hires on 7/1/2011 x the salary that would be earned at age 55, **$144,238.40** (shown in Appendix C Table App. C-2a, Column 3). These annual employee contributions (or pension premiums) cease at age 65, when the regular retirement pension cited above begins.

As explained previously, Ordinary Disability benefits are not reduced through the multiplier for fewer years of service if retirement occurs before age 65 under the Maryland State Retirement Pension System Reformed Contributory Pension Benefit. For Case 2b, the annual disability pension would be **$81,583** at age 55, calculated based on the employee's average of the highest five consecutive annual salaries of $135,972.37 $\times$ 1.5% x 40 years of service, assuming 30 years creditable service + 10 more years to reach age 65. (This result is shown in Appendix C, Table App. C-2b, Column 11 and read into Table 3 Column 4). Due to the Case 2b assumption that disability occurs at age 55, all step rate increases over 18 years will have occurred, and thus subsequent salary and disability increases will both continue at the same COLA assumption of 2% per year. Hence, by age 65, the disability pension becomes **$99,450** (= $81,583.42 $\times$ 1.02^{10} = $99,449.74, which equals the regular retirement benefit, shown in Table 3, Columns 3 and 4, as well as Appendix C Tables C-2a and C-2b, Column 5 and Column 11, respectively).

Discounting both pension streams at 3% per year to the beginning of year 1, when the employee turns 55 years old, results in present values for the lost regular pension (with the employee premium paid until age 65) of **$1,277,031** vs. **$2,129,231** for the ordinary disability pension, shown in Table 3, Columns 6 and 7. The difference, **-$852,200**, is shown at the bottom of Column 8. Since the Rotolo-Oden Method only allows disability pensions to offset regular pensions, the net pension loss is zero.

The Alternative Method of offsetting the regular pension with the Ordinary Disability pension, i.e., Case 2a vs. 2b, shown in Table 3, Columns 9-16, also results in a zero net pension loss (before considering the employee's pension contributions). As just discussed, regular and disability pensions are the same if disability occurs by age 55, due to lack of remaining steps to increase salaries at retirement more than by subsequent COLAs and the fact that under the Ordinary Disability Retirement rules, creditable service is the sum of actual service plus service projected to age 65. The annual disability pension at age 55, calculated above to be $81,583.42, increased for 10 years at 2% per year, equals $99,449.74, the same as the regular retirement pension at age 65, shown in Columns 10 and 11. Hence, the net result

using the Alternative Method is exactly zero, before accounting for the employee's pension contributions until retirement with both the value of the regular and disability pensions from age 65 through life expectancy equaling $1,370,883.

The more complete comparison again requires accounting for the employee's pension contributions. Since the net pension loss based on the Alternative Method of pension valuation excluding the employee's contributions is exactly zero, the Effective PV with its inclusion of employee pension contributions is simply the PV of the employee's contributions, -$93,852. And since the net pension loss under *Rotolo* is also zero simply because no net pension loss is allowed, the difference between net pension loss under the Rotolo-Oden Method vs. the Alternative Method is the same: 0. However, the Effective PV on total damages under the Alternative Method after accounting for employee pension contributions or premiums as an offset to lost earnings is 0 + (-$93,852)= **-$93,852**, shown at the bottom of Table 3, Column 15. This result illustrates a rule that should determine which method leads to a greater damage award. If regular pension premiums are included in the comparison between the two methods, a rule about the Effective PV between the two CSR methods is as follows:

> **If (a) under the Alternative Method, the Effective PV is <u>negative</u>, which shows the impact of net pension loss on total damages, and (b) under *Rotolo-Oden*, the net pension loss is negative and thus zeroed out, then the Alternative Method will result in a lower total damage award that also includes lost future earnings.** That is a direct result of the different ways that employee pension contributions are accounted for under each method. Using the Alternative Method as described in this paper, the employee's pension contributions are accounted for separately from the net pension loss, since the net pension loss is calculated only beginning from the pre-injury expected retirement date. In contrast, using the Rotolo-Oden Method, the employee's pension contributions are often zeroed out because these contributions reduce the net regular pension loss, which is calculated from the date of disabling injury. **Hence, if the above two conditions hold, then the Alternative Method will produce a lower total damage award.**

Comparisons Based on Maryland Reformed Contributory Retirement System, with Ordinary Disability Benefits, Disabled on 35th Birthday (Table 5, Cases 2a vs. 2c)

Table 4 compares the Maryland Reformed Contributory Retirement System, with <u>Ordinary</u> Disability Retirement benefits under both CSR methods for the hypothetical employee who both

worked until age 65 and retired vs. having been disabled and retired on his 35th birthday. In Table 4, Columns 2-8 are again based on the Rotolo-Oden Method of disability pension offset, but due to having only ten years of creditable service and starting 20 years earlier, Table 4, Columns 3 and 4, now show very different values from those seen in Table 3. In Case 2a, the regular pension is the same in current dollars as shown in Table 3 and Table 4, but Case 2c in Table 4 includes the cumulative effect of having to pay pension premiums over 20 more working years than in Table 3 to remain eligible for a regular pension at age 65. And now under the Rotolo-Oden Method, the results are discounted back an extra 20 years, to age 35. In Table 4, Column 3 at age 35, under Case 2a for regular retirement, the **-$5,631** shown is calculated as the required employee charge of 7% beginning with new hires on 7/1/2011 x the salary that would be earned at age 35 or $80,441.48 (shown in Appendix C, Table App. C-2a, Column 3).

For Case 2c, the annual pension that the disabled employee would earn at age 35, shown in Table 4, Column 4, would be **$43,064.01** which is calculated based on the employee's average of the highest consecutive annual salaries of $71,773.36 × 1.5% x the same effective 40 years of service. (Again, under Ordinary Disability Retirement rules, creditable service is the sum of actual service plus service projected to age 65, in this case assuming 10 years creditable service + 30 more years to reach age 65). This Ordinary Disability pension grows at 2%/year annual COLAs for 30 years and thus reaches **$78,005** by age 65 ($43,064.01 × 1.02^{30} = $78,004.50, shown in Appendix C, Table C-2c, Column 17.

Discounting Case 2a and 2c pension streams at 3% per year to the beginning of year 1, when the employee turns 35 years old, results in present values for the lost regular pension (with the employee premium paid until age 65) and for the ordinary disability pension of **$610,936** vs. **$1,736,215**, respectively, shown in Table 4, Columns 6 and 7. The difference, **-$1,125,279**, is shown at the bottom of Column 8. Since the Rotolo-Oden Method only allows disability pensions to offset regular pensions, the net pension loss again is zero.

The Alternative Method of offsetting the regular pension with the Ordinary Disability pension gives a very different result for Case 2a vs. 2c, shown in Table 4, Columns 8-14. Instead of having a large net gain (before zeroing out the results) from the disability pension exceeding the lost regular pension as under the Rotolo-Oden Method, here we again have a net pension loss under the Alternative Method, **$168,586** (=$781,796 - $613,210). The greater loss using the Alternative Method is unsurprising. Although the same factors creating a greater Alternative Method loss with three of other paired cases remain true here, the Alternative net pension loss is greater for Cases 2a vs. 2c in

Table 4.   MD Ordinary Disab. Pension; Rotolo/Oden Method and Alternative Method of Applying Disability Pension Offset:

Case 2a v. 2c - Lost Regular Retir't Pension (2a), Offset with Ordinary Disab. Pension, Retire at 35 w/ 30 Years of Service (2c)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Rotolo-Oden Method of Disability Pension Offset						Alternative Method of Disability Pension Offset							
		Injured at 35: Case 2a vs. Case 2c						Altern. Method: Offset Reg. Pens. w/ Earned Pens. to Disab. Date, Grow @ COLA; net @ Ret.				PV of Employee Contrib. (1) (170,860)			
		Case 2a	Case 2c		PV from Disability Date		Net Pension		Case 2a	Case 2c		PV from Exp. Ret. Date		Net Pension	Regular pension
Age @ Beg yr	Yrs to disc	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Reg. Pens. Less	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	Yrs to disc	Lost Reg. Pens. Less Contrib.	Gain Disab. Pension	Disc Fctr	PV Lost Regular pension	PV Gain Disab. Pension	Loss (PV), Regular Less Disability	earned to disability date
35	1	(5,631)	43,064	0.97087	(5,467)	41,810	(47,277)	1			0.97087				43,064
36	2	(5,852)	43,925	0.94260	(5,516)	41,404	(46,920)	2			0.94260				43,925
37	2	(6,082)	44,804	0.94260	(5,733)	42,232	(47,965)	2			0.94260				44,804
38	3	(6,321)	45,700	0.91514	(5,785)	41,822	(47,607)	3			0.91514				45,700
39	4	(6,570)	46,614	0.88849	(5,837)	41,416	(47,253)	4			0.88849				46,614
40	5	(6,828)	47,546	0.86261	(5,890)	41,014	(46,904)	5			0.86261				47,546
41	6	(7,097)	48,497	0.83748	(5,944)	40,616	(46,559)	6			0.83748				48,497
42	7	(7,376)	49,467	0.81309	(5,998)	40,221	(46,219)	7			0.81309				49,467
43	8	(7,667)	50,456	0.78941	(6,052)	39,831	(45,883)	8			0.78941				50,456
44	9	(7,969)	51,465	0.76642	(6,108)	39,444	(45,552)	9			0.76642				51,465
45	10	(8,283)	52,495	0.74409	(6,163)	39,061	(45,224)	10			0.74409				52,495
46	11	(8,448)	53,545	0.72242	(6,103)	38,682	(44,785)	11			0.72242				53,545
47	12	(8,617)	54,616	0.70138	(6,044)	38,306	(44,350)	12			0.70138				54,616
48	13	(8,790)	55,708	0.68095	(5,985)	37,934	(43,920)	13			0.68095				55,708
49	14	(8,966)	56,822	0.66112	(5,927)	37,566	(43,493)	14			0.66112				56,822
50	15	(9,145)	57,958	0.64186	(5,870)	37,201	(43,071)	15			0.64186				57,958
51	16	(9,328)	59,118	0.62317	(5,813)	36,840	(42,653)	16			0.62317				59,118
52	17	(9,514)	60,300	0.60502	(5,756)	36,483	(42,239)	17			0.60502				60,300
53	18	(9,705)	61,506	0.58739	(5,700)	36,128	(41,829)	18			0.58739				61,506
54	19	(9,899)	62,736	0.57029	(5,645)	35,778	(41,423)	19			0.57029				62,736
55	20	(10,097)	63,991	0.55368	(5,590)	35,430	(41,020)	20			0.55368				63,991
56	21	(10,299)	65,271	0.53755	(5,536)	35,086	(40,622)	21			0.53755				65,271
57	22	(10,505)	66,576	0.52189	(5,482)	34,746	(40,228)	22			0.52189				66,576
58	23	(10,715)	67,908	0.50669	(5,429)	34,408	(39,837)	23			0.50669				67,908
59	24	(10,929)	69,266	0.49193	(5,376)	34,074	(39,451)	24			0.49193				69,266
60	25	(11,148)	70,651	0.47761	(5,324)	33,743	(39,067)	25			0.47761				70,651
61	26	(11,371)	72,064	0.46369	(5,272)	33,416	(38,688)	26			0.46369				72,064
62	27	(11,598)	73,505	0.45019	(5,221)	33,091	(38,313)	27			0.45019				73,505
63	28	(11,830)	74,975	0.43708	(5,171)	32,770	(37,941)	28			0.43708				74,975
64	29	(12,066)	76,475	0.42435	(5,120)	32,452	(37,572)	29			0.42435				76,475
65	30	99,450	78,005	0.41199	40,972	32,137	8,835	30	99,450	78,005	0.41199	40,972	32,137	8,835	78,005
66	31	101,439	79,565	0.39999	40,574	31,825	8,749	31	101,439	79,565	0.39999	40,574	31,825	8,749	79,565
67	32	103,468	81,156	0.38834	40,180	31,516	8,664	32	103,468	81,156	0.38834	40,180	31,516	8,664	81,156
68	33	105,537	82,779	0.37703	39,790	31,210	8,580	33	105,537	82,779	0.37703	39,790	31,210	8,580	82,779
69	34	107,648	84,435	0.36604	39,404	30,907	8,497	34	107,648	84,435	0.36604	39,404	30,907	8,497	84,435
70	35	109,801	86,123	0.35538	39,021	30,607	8,415	35	109,801	86,123	0.35538	39,021	30,607	8,415	86,123
71	36	111,997	87,846	0.34503	38,642	30,310	8,333	36	111,997	87,846	0.34503	38,642	30,310	8,333	87,846
72	37	114,236	89,603	0.33498	38,267	30,015	8,252	37	114,236	89,603	0.33498	38,267	30,015	8,252	89,603
73	38	116,521	91,395	0.32523	37,896	29,724	8,172	38	116,521	91,395	0.32523	37,896	29,724	8,172	91,395
74	39	118,852	93,223	0.31575	37,528	29,435	8,092	39	118,852	93,223	0.31575	37,528	29,435	8,092	93,223
75	40	121,229	95,087	0.30656	37,163	29,150	8,014	40	121,229	95,087	0.30656	37,163	29,150	8,014	95,087
76	41	123,653	96,989	0.29763	36,803	28,867	7,936	41	123,653	96,989	0.29763	36,803	28,867	7,936	96,989
77	42	126,126	98,929	0.28896	36,445	28,586	7,859	42	126,126	98,929	0.28896	36,445	28,586	7,859	98,929
78	43	128,649	100,907	0.28054	36,092	28,309	7,783	43	128,649	100,907	0.28054	36,092	28,309	7,783	100,907
79	44	131,222	102,925	0.27237	35,741	28,034	7,707	44	131,222	102,925	0.27237	35,741	28,034	7,707	102,925
80	45	133,846	104,984	0.26444	35,394	27,762	7,632	45	133,846	104,984	0.26444	35,394	27,762	7,632	104,984
81	46	136,523	107,083	0.25674	35,050	27,492	7,558	46	136,523	107,083	0.25674	35,050	27,492	7,558	107,083
82	47	139,254	109,225	0.24926	34,710	27,225	7,485	47	139,254	109,225	0.24926	34,710	27,225	7,485	109,225
83	48	142,039	111,410	0.24200	34,373	26,961	7,412	48	142,039	111,410	0.24200	34,373	26,961	7,412	111,410
84	49	144,879	113,638	0.23495	34,039	26,699	7,340	49	144,879	113,638	0.23495	34,039	26,699	7,340	113,638
85	50	147,777	115,911	0.22811	33,709	26,440	7,269	50	147,777	115,911	0.22811	33,709	26,440	7,269	115,911
Sum					610,936	1,736,215	(1,125,279)					781,796	613,210	168,586	

PV of Employee Pension Contributions if Still Working:		(170,860)
Net Pension Loss Under Altermnative Method		(2,274)

(1) In Alternative method, one way to reflect required employee contributions while working is to net them against lost future earnings. Total contributions equals sum of col. 6 until age 65.

Table 4 as compared with the net pension loss for Cases 2a vs. 2b in Table 3. That is because with a disabling injury assumed to occur at age 35 in year 10, all of the step rate increases have not yet occurred. That is why by age 65, the disability pension is only **$78,005** (seen in Columns 4 and 11) as compared with the regular pension of **$99,450** (seen in Columns 3 and 10). Another comparison can be made between the MD Ordinary Retirement system results vs. FERS. The disability pension of **$78,005** by age 65 is the same under both pension valuation

methods in Table 4 as was the disability pension of $99,450 under both pension valuation methods in Table 3; that is because the MD Ordinary Disability pension benefit applies the same service multiplier and effective number of years of service including the years on disability, unlike in Tables 1 and 2 with FERS.

Finally, the more complete comparison again requires separately accounting for the employee's pension contributions. The PV of the employee's regular pension contributions = **$170,860**, shown near the top of Table 4, Column 13, and again as an adjustment to derive the Effective PV at the bottom of Column 15. The Alternative Method's "Effective PV" of **-$2,274** combines the net pension loss measured from the retirement date, $168,586, with PV of the employee's regular pension contributions of $170,860. For a complete comparison between methods, we can observe almost the same net loss or damages: Using Rotolo-Oden, the large net pension loss is zeroed out, out while using the Alternative Method, the Effective PV is slightly negative.

Thus, the rule that was cited at the end of the last section holds here too, although just barely: **If (a) under the Alternative Method, the Effective PV is negative, which shows the impact of net pension loss on total damages, and (b) under the Rotolo-Oden Method, the net pension loss is negative and thus zeroed out, then the Alternative Method will result in a lower total damage award that also includes lost future earnings.**

In Table 5, the estimated net pension losses are shown for all four sets of comparative results. The estimated net pension difference for each set of results is shown in **bold**. (Note: Negative values in bold mean that the first number in parentheses, the regular pension loss, is more than offset by the second number in parentheses, the disability pension under the applicable valuation method).

As Table 5 shows, under the Rotolo-Oden Method of netting regular and disability pensions, in all four cases the present value of the disability pension exceeds the present value of the regular retirement pension. This is because the FERS system largely (by age 62) and MD Reformed contributory system fully (immediately, with only five years of service) make disabled employees essentially whole as compared with their lost regular pension at an expected age-65 retirement date. In these hypothetical cases with very generous replacement of a regular pension by a disability pension, there might only be a net earnings loss depending on how the pension premiums are accounted for. As the *Rotolo* judge wrote: "A pension is a pension is a pension," and as affirmed in the *Oden* case decision, one pension can only offset another pension, i.e., no excess disability pension is allowed to reduce future earning capacity losses.

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The Alternative Method described above and used by some forensic economists results in a net pension loss (i.e., present value of regular pension less disability pension) in three of the four case pairings, leaving aside for the moment the present value of employee pension contributions while working to remain eligible for the regular pension. With this exclusion, the Alternative Method greatly increases the net pension losses by eliminating the period until expected retirement in which a disabled plaintiff does in fact receive a disability pension, and for which the effect of discounting cash flows would be the least.

Proponents of this Alternative Method, by design, exclude any source of income not provided by the defendant during his working life that is replacing earnings, believing this to be in violation of the CSR. However, we cannot ignore the need for an employee to continue making pension contributions to remain eligible for a regular pension upon retirement, and thus some way of accounting for the employee pension contributions must be found. A convenient way, and some FEs might argue, an appropriate way to do this within a damage award calculation, is simply to reduce future earnings losses by the employee's contributions toward his or her pension, which typically occurs through mandatory payroll deductions.

Since this paper is focused only on comparing pension loss methods, the employee contributions must be factored into the net pension loss, rather than net earnings loss. This is done in the final two columns of Table 5. In the next to the last column, the present value of these employee contributions from the date of assumed injury/ disablement until age 65 are displayed. In the last column, the **"Effective PV"** for the net pension loss is calculated by combining the prior two columns.

Not surprisingly, in all four case pairings shown in Table 5, the "Effective PVs" are higher (meaning either a positive number or a less negative number and hence a greater net pension loss) using the Alternative Method of calculating pension losses vs. the Rotolo-Oden Method, before the latter's negative losses are zeroed out. However, if the pension contributions required while still working are netted against the earnings loss, rather than considered part of the net pension loss, only the FERS Case 1a vs. 1b comparison would result in a total economic loss greater under the Alternative Method as modeled here: +**$14,532**. In the second FERS example, Case 1a vs. 1c, there still would be a negative Effective PV under the Alternative Method, **-$53,583**. As compared to the first FERS example, the negative results in the second FERS example is due to the fact that the longer period of employee pension premiums that would have had to be paid to be eligible for regular pension had the plaintiff not become disabled at the

Table 5. Summary of Results under Different Net Pension Loss Methods

(PV of Lost Regular Pension Less Gain from Disability Pension under Each Method)

Retirement & Disability Plan	Age at Time of Injury	Years of Service	Results shown in:	Case Detail Shown in Appendices:	Case Results Compared	ESTIMATED NET PENSION LOSS UNDER BOTH METHODS			
						Rotolo-Oden Method (1) — Losses begin w/ Disability Date; then discounted to (PV)	Alternative Method (2) — Losses begin @ Expected Retirement Date; then disc to PV	Less: Employee Contributions (PV)	Equals: Alternative Method "Effective PV"
FERS	55	30	Table 2	Appendix B	Case 1a vs. 1b	-$341,197 (= $784,660 - 1,125,856) Net pension loss=0, can't be negative	$62,443 (= $832,571 - $770,128)	-$47,911	$14,532
FERS	35	10	Table 3	Appendix B	Case 1a vs. 1c	-$705,587 (= $385,610 - $1,091,197) Net pension loss=0, can't be negative	$35,610 (= $474,803 - $439,193)	-$89,193	-$53,583
State/MD (3)	55	30	Table 4	Appendix C	Case 2a vs. 2b	-$852,200 (= $1,277,031 - $2,129,231) Net pension loss=0, can't be negative	$0 (= $1,370,883 - $1,370,883)	-$93,852	-$93,852

(continued on next page)

Table 5.   (continued)

| | | | | | | ESTIMATED NET PENSION LOSS UNDER BOTH METHODS | | | |
| | | | | | | Rotolo-Oden Method (1) | Alternative Method (2) | | Equals: Alternative Method "Effective PV" |
Retirement & Disability Plan	Age at Time of Injury	Years of Service	Results shown in:	Case Detail Shown in Appendices:	Case Results Compared	Losses begin w/ Disability Date; then discounted to (PV)	Losses begin @ Expected Retirement Date; then disc to PV	Less: Employee Contributions (PV)	
State/MD (3)	35	10	Table 5	Appendix C	Case 2a vs. 2c	-$1,125,279 (= $610,936 - $1,736,215) ; Net pension loss=0, can't be negative	$168,586 (= $781,796 - $613,210)	-$170,860	-$2,274

(1) Under Rotolo-Oden method, both lost regular pension and disability pension are projected from date of disability, including mandatory employee contributions for regular pension until expected pre-injury retirement. Numbers in bold are the calcuated difference between the lost regular pension and the disability pension shown in parentheses. However, since the disability pension can only offset loss of a regular pension under Rotolo-Oden method, rule is: **Net pension loss = Max [(regular pension PV – disability pension PV), zero]**.

(2) Under Alternative method, both lost regular pension and disability pension are projected from expected pre-injury retirement date. Since completeness requires inclusion of employee's pension contributions toward his regular pension, and since this method only begins calculating a net loss of both pensions begining with the pre-injury expected retirement date, employee pension contributions are instead netted against lost future earnings. To be consistent in comparing methods, since Rotolo-Oden accounts for employee contributions as part of the regular pension, and net earnings loss is ignored here, these employee contributions must be included as part of the Alternative method results as the "Effective PV" of net pension loss.

(3) MD example is based on Reformed Contributory Pension Benefits system applicable to new hires as of 7/1/2011. Under Ordinary Disability formula, "There is no reduction applied for retiring before age 65", i.e., months of service on disability retirement is projected to age 65 and added to actual creditable service. Note, this is reason for much greater disability pension valuations under MD State system under Ordinary Disability retirement formula vis-à -vis FERS retirement, holding other factors constant.

younger age of 35 more than offsets the pension differential starting at age 65. The Alternative Method would only result in the same total economic loss as under *Rotolo-Oden* if the premiums were counted as part of the net pension loss, which would then become zero under both methods.

Both State/MD comparisons result in lesser Effective PV under the Alternative Method than under the Rotolo-Oden Method, the latter of which produce substantially negative pension losses and hence result in Effective PVs of zero. In the Case 2a vs. 2b comparison, the Alternative Method has a pension loss of zero before accounting for the employee pension contributions, **-$93,852**, which creates a negative Effective PV of that same amount, given the Alternative Method's treatment of pension contributions as a reduction in loss of earnings. In the Case 2a vs. 2c comparison, rather than a zero loss before accounting for the employee pension contributions, the Alternative Method produced a net pension loss of $168,586, which is slightly more than offset by -$170,860 in PV of employee pension contributions, resulting in an Effective PV of **-$2,274**.

Applying the generalization made above to the four sets of case results summarized in Table 5, we observe the following: **If the net pension loss under the Alternative Method has a zero or negative "Effective PV", then the Rotolo-Oden Method will result in a higher total damages award as long as the Alternative Method includes pension premiums that reduce the net earnings loss. (This assumes that the net pension loss is also negative under *Rotolo-Oden*, which almost certainly will be true with the same case facts.) Otherwise, the Alternative Method may result in a higher damage award, but that will depend on many factors, such as the generosity of a given program's disability pension formula in making the disabled pensioner "whole" relative to an expected regular pension. This can be done via a recast formula at age 62 as with FERS, or an even more generous virtual copying of the pension formula almost regardless of age of disability as with the MD Reformed Contributory system, since after five years of actual service, it imposes no service years or multiplier reductions for a disability retirement before age 65. The other factor is whether the employee's pension contributions that are required to remain eligible for a regular pension are valued as part of the net pension loss or as part of future earnings loss.**

V.   Observations and Conclusions

Collateral source rules involving pensions have been applied differently in various jurisdictions. In jurisdictions where case law pertaining specifically to the application of CSRs to pension benefits

has been limited or non-existent, FEs have employed varying methods in calculating damages. Many PI, WD and Employment Law cases throughout the U.S. have favored plaintiffs by precluding entry into evidence of disability and survivor's (widow's) pensions. The ostensibly most favorable methods to defense in PI cases have been sanctioned by courts in the *Rotolo* and *Oden* cases (CA and NY appeals courts, respectively). In these two cases, courts have permitted disability pension income entered into evidence from the time of injury such that its present value might at most fully offset the loss of a regular pension, while leaving the loss of future earnings untouched. In WD cases, survivor's pensions have been <u>excluded</u> as evidence when viewed as a new benefit akin to life insurance (*McKinney*, CA appeals court), or <u>included</u> when viewed directly as a retirement plan pension and explicitly not as akin to life insurance (*Russo*, FL appeals court) or as offset to the decedent spouse's potential future pension benefit (*Sears*, DE Sup. Ct.). However, ambiguity can still arise in the same jurisdiction, such as in *Mize-Kurzman*, an employment law case (also a CA appeals court), in which a pension was described no different from an insurance policy, citing *McKinney* as precedent.

In terms of calculating damages, FEs may choose to follow the Rotolo-Oden Method or some Alternative Method that only considers a disability or survivor's pension as offsetting during the expected retirement period, pre-injury or pre-death. However, depending on the pension plan specifics, such an Alternative method may not lead to a higher damage award than *Rotolo-Oden*. The Rotolo-Oden Method provides mixed results based on the FERS retirement plan in terms of the relative magnitude of total damage awards as compared with the Alternative method spelled out in this paper. The effective total damage award will depend not only on the relative generosity of disability pension formulae in replacing lost regular pension benefits, but also on whether the required pension premiums are netted against lost future earnings and not as part of the net pension loss. In the Maryland Reformed Contributory system, assuming an "Ordinary Disability" claim and an extremely generous regular pension replacement formula, the comparative results shown here favor the Rotolo-Oden Method for higher awards, but only as long as required pension premiums are netted against lost future earnings and not as part of the net pension loss.

Given the legal ambiguity that exists among cases even within a jurisdiction but with only similar sets of case facts, it can be difficult to establish definitive rules for pension loss calculation. When considering additional differences in pension plan features, it also becomes difficult to generalize which pension loss calculation method will result in relatively higher or lower present value of results. Greater uniformity

of case law across jurisdictions would help clarify these uncertainties. In addition, reporting by FEs on how their methods have been received in court, perhaps via a question on this matter posed in a future survey of forensic experts, would also assist in clarifying which methods FEs should use, and under which circumstances.

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Appendix A: Table App. A-1 – Important Injury, Death, and Employment Law Cases Involving Collateral Source Rule (CSR) and Pensions, Grouped by

Note: Case types are identified within each subtopic area as one of the following: employment law (EL); wrongful death (WD); or one of two groupings of personal injury (PI) cases, those either subject to Federal Employers' Liability Act (FELA) denoted PI-FELA, or those not, denoted PI-Non-FELA.

1. Cases Establishing CSR as Prohibiting Pensions of Any Type (Ordinary, Disability, and Survivor's) to Offset Lost Earnings/Earning Capacity

Eichel v. New York Central Railroad Co., 375 U.S. 253 (1963) (**PI-FELA**). The trial court excluded evidence of disability pension payments to plaintiff. Defense argued that such payments were offered to impeach the testimony of the plaintiff as to his motive for not returning to work. On appeal, defense agreed that it would have been highly improper for disability pension payments to be considered in mitigation of damages, but rather that it should be admissible as bearing on the extent and duration of the disability, and that the pension would show a motive of the plaintiff not continuing work. The appeals court reversed the trial court's decision to exclude disability pension evidence, and remanded for a new trial limited to damages. The appeals court said it was prejudicial error to exclude evidence of the disability pension because: "Its substantive probative value cannot reasonably be said to be outweighed by the risk that it will ... create substantial danger of undue prejudice through being considered by the jury for the incompetent purpose of a set-off against lost earnings." However, the U.S. Supreme Court reversed the appeals court, stating that evidence of disability pension as collateral benefit is "readily subject to misuse by a jury" and if such benefits were allowed as evidence, this would involve "... a substantial likelihood of prejudicial impact."

EEOC v. O'Grady, 857 F.2d 383 (7th Cir. 1988) (**EL**). In this matter, plaintiffs were forced to retire at age 70 in violation of Age Discrimination in Employment Act (ADEA). Defense appealed the trial court's decision not to offset back pay with ordinary pension benefits that plaintiffs had received from defendant. Appeals court upheld, noting that pension benefits were a collateral source that may be viewed as compensation earned by employee, and that payments (by the employer) were made to carry out a state policy under state law independent of ADEA.

Hamlin v. Charter Twp. of Flint, 942 F.Supp. 1129, 1138 (E.D.Mich., 1996) (**EL**). Plaintiff sued township for termination, allegedly violating Americans with Disabilities Act (ADA) and state law. The trial court granted the township's motion to offset the jury's award with present value of disability pension. The appeals court reversed the trial court, saying collateral pension benefits should not be deducted from a jury's award for discrimination violations. The appeals court cited the *Lussier* decision (see Table App. A-1, Subtopic 2, for full citation), noting that although in principal, district courts have discretion in awarding front pay, decision "...to offset collateral

pension benefits from a discrimination award is a policy determination that should not be left to individual discretion of each district court."

Salveson v. Douglas County, 630 N.W.2d 182 (WI 2001) (**EL**). Plaintiff sued county for supervisor's sexual harassment and gender discrimination. After confirmation by county investigators, plaintiff claimed these actions caused her to suffer from PTSD. She then terminated employment and began receiving a disability pension. In EEOC suit, the trial court denied the county's claim that compensatory and punitive damages were subject to a damages cap, and also declined to offset damages (i.e., back and front pay, pain and suffering, medical) with disability benefits. The appeals court upheld damages cap but reversed the lower court's exclusion of plaintiff's disability pension, allowing it as an offset to damages. The Wisconsin Supreme Court reversed appeals court and reinstated exclusion of disability pension, citing *EEOC v. O'Grady* (see Table App. A-1, Subtopic 1, previously cited) that if benefits are part of compensation, such payments should not be subject to an offset.

McKinney v. California Portland Cement Company, 96 Cal.App. 4th 1214 (2002) (**WD**). Decedent had previously retired and began drawing pension and Social Security benefits prior to his death, allegedly related to asbestos exposure. Defense objected to trial court award that excluded mention of widow's pension benefits. Defense claimed that widow's pension payments were not "paid in connection with the injury or death at issue," and that the CSR only applies to pension benefits when they are paid to replace something that was lost because of the death. The appeals court upheld the trial court ruling, noting that even though widow's benefit came from the same source as her husband's earnings, this made no difference in the application of the collateral source rule and thus could not be introduced. The appeals court added that the survivor's benefit that the spouse received after her husband's death were new benefits, issued for the first time in her name, as a direct result of the death.

Lovett v. City and County of San Francisco, 2004 (Cal. App.) (**EL**). The appeals court upheld a lower court verdict and award that a state agency had discriminated against plaintiff by failing to make a reasonable accommodation for disability. The appeals court held: "... that a pension benefit is a collateral source, separate from the employer's status as a tortfeasor. Like insurance, such payments are secured by the plaintiff's efforts as a part of the employment contract, and the tortfeasor is generally entitled to no credit for them."

2. Unsuccessful Challenges to CSR As Applied to Pensions

Melton v. Illinois Central Gulf Railroad Co., 763 SW 2d 321 - Mo: Court of Appeals, Eastern Dist., 4th Div. 1988 (**PI-FELA**). The trial

court rejected Railroad's efforts to set off disability benefit payments it made to Railroad Retirement Board on plaintiff's behalf. On appeal, defendant cited a case referring to Section 5 of FELA, in which payments made by the railroad under a voluntary disability plan were deductible from a jury award. The appeals court rejected this, citing *Eichel* (see Table App. A-1, Subtopic 1, previously cited), noting that recovery of contributions to Railroad Retirement Board differed because they were required under federal law, and under federal law, affirmed the trial court decision.

Lussier v. Runyon, 50 F. 3d 1103 - Court of Appeals, 1st Circuit 1995 (**EL**). A wrongfully discharged postal worker was awarded damages by the trial court, but it allowed disability benefits from two retirement plan sources to offset front pay losses. The appeals court noted that it tended to agree with those courts that have considered the "interplay between collateral benefits and back pay to be a matter within the district (trial) court's discretion." In this case, the only question before the appeals court applied to front pay, which it considered of a more speculative nature and thus more heavily dependent upon the informed discretion of the lower court. Thus, the appeals court held "… that it is within trial court's discretion to tailor a front pay award to take account of collateral benefits in a discrimination case, and that the court acted within the realm of this discretion in the case at bar." However, on procedural grounds, once the record was closed (i.e., only partially reopening the record to allow additional factual information) the award was canceled and returned. The award that included the higher pension amount was presented after the record was closed and, hence, absent a waiver or consent, was not allowed. Reference was made to the discretion of a trial court in offsetting front pay with pension benefits in the *Hamlin* decision (see Table App. A-1, Subtopic 1, previously cited).

CSX Transportation, Inc., v. Day, 613 So. 2d 883 (Ala 1993) (**PI-FELA**). The trial court ruled in favor of the plaintiff, awarding amounts for loss of past and future income, as well as pain and suffering. Defense appealed on several grounds, including the closing remarks by plaintiff's attorney, saying of plaintiff: "He hasn't worked long enough to get a pension." Defense contended these remarks were highly prejudicial, leaving the impression on the jury that plaintiff would never be eligible to receive a pension even though plaintiff would be eligible for a pension upon reaching age 60. The Alabama Supreme Court affirmed the trial court's decision, saying that although defense objected to plaintiff's attorney's comments about a pension at trial, it did not request a curative instruction be made to the jury. Not having made such a request, defense could not now claim that the trial court erred in not giving a curative instruction to the jury. Since CSX

did not request such an instruction at trial, it could not claim that the trial court erred, and so the issue was not preserved for appeal. (Note: Many railroad FELA cases involve nuances on how CSR applies to admissibility of age-related testimony. These are addressed separately in Table App. A-1, Subtopic 4.)

Ortner v. Enterprise Rent-A-Car Company of Los Angeles, 2008 Cal. App. (**WD**). The trial court excluded mention of a survivor's (or widow's) pension. Defense appealed, among other points citing *Rotolo* decision [see Table App. A-1, Subtopic 3, for full citation] in which defense was successful in including a disability pension as an offset to the loss of a future regular pension/retirement benefits. The appeals court upheld the trial court decision citing *McKinney* [see Table App. A-1, Subtopic 1, previously cited], and rejected the logic of the *Rotolo* decision. The appeals court called the defense argument specious that the decedent could not have received both his regular pension and the death benefit, since it was possible that his widow could have received both if her spouse had first retired, received pension payments, and then died. In explaining how this case was more similar to *McKinney* than *Rotolo,* the appeals court said that unlike the *Rotolo* plaintiff, in this case the decedent could "under no circumstances retire for disability and subsequently receive his regular pension, or vice versa."

Mize-Kurzman v. Marin Community College Dist., 202 Cal.App.4th 832 (2012) 136 Cal.Rptr.3d 259 (**EL**). This was a whistleblower case in which the plaintiff was a community college dean who alleged that her superiors violated state law in several matters. (e.g., tampering with the hiring process, awarding publicly-funded scholarships based on ethnicity). Plaintiff asserted retaliation and eventually was reassigned to a lower-paid counselor position. However, given her previously higher salary as a dean, her retirement pension would not have been materially reduced, and including Social Security, exceeded what she could have earned had she stayed as a dean. The trial court said that the jury was "entitled to consider the availability" to plaintiff of a retirement pension and that "[t]he extent to which such a retirement pension could reduce" her damages was an issue of fact for the jury. The trial court considered the amount of her retirement pension admissible on the issue of mitigation of plaintiff's damages and that the jury could determine whether and to what extent such retirement pension could reduce her damages. The appeals court rejected this argument, citing precedents (including *McKinney*) that state pensions are considered independent income sources from state schools, and that the CSR is no different because the compensation comes from a pension rather than an insurance policy. It added that defendant's wrongful conduct would result in an unacceptable choice, forcing an employee who is eligible to retire but does not wish to do so,

to retire for economic reasons rather than pursuing a claim against a wrongdoer that might take years to come to fruition.

3. Successful Challenges to CSR As Excluding Pensions

Fariss v. Lynchburg Foundry, 769 F. 2nd 958- Court of appeals, 4th Circuit 1985 (**EL**). This is an Age Discrimination in Employment Act (ADEA) case, in which the plaintiff had subsequently died after his allegedly wrongful termination. Several questions pertained to how his life insurance, which was lost upon his termination, should be calculated; the appeals court ruled that its value was only for the continuing premium payments that defense would have made. Regarding pensions, the appeals court noted that because plaintiff declined a survivor benefit option in favor of the lump sum, no pension benefits would have been paid had he remained employed until his death. The appeals court therefore ruled that defense was entitled to an offset against back pay and front pay for the lump sum pension benefits that plaintiff received when he was terminated. Moreover, since the lump sum was larger than his lost earnings due to his subsequent death, there was no loss of financial support from his lost earnings to his surviving wife.

Rotolo Chevrolet v. The Superior Court of the County of San Bernadino, 105 Cal.App.45h 242; 129 Cal. Rptr. 2d 283 (Cal.App. 2003) (**PI-Non-FELA**). Injured plaintiff was forced into premature retirement, intending to claim losses of future earnings and regular pension/retirement benefits. The trial court excluded evidence of disability retirement benefits under California's CSR. Defense appealed and the trial court's decision was reversed. The appeals court said the trial court erred in considering disability retirement benefits as a collateral source replacing regular retirement benefits. If not overruled, plaintiff "will wind up with triple compensation" (i.e., lost income, lost regular retirement benefits, and receipt of actual disability retirement benefits), which it called an "inequitable result." Thus, plaintiff "...cannot use [CSR] to prevent [defense] from introducing evidence that [plaintiff] is, in fact, receiving a pension." (See Table App. A-1, Subtopic 5, *Oden* case, for partial support of logic similar to *Rotolo*.)

Sears, Roebuck and Co. v. Midcap, 893 A.2d 542 (Del. 2006) (**WD**). This decision defined the application of the CSR to pension benefits when a death results in reduced benefits to the spouse of a decedent. Damages awarded by trial court included loss of military pension and Social Security benefits, but the trial court applied CSR to benefits from those same sources, excluding fact that the widow would continue to receive substantial portions of both in the future. The Delaware Supreme Court reversed the trial court, stating that although

the CSR generally excludes evidence of such retirement benefits, "... facts in this case are more analogous to those in *Rotolo* ..." (cited previously), restating the *Rotolo* ruling that plaintiff "...cannot use [CSR] to prevent [defense] from introducing evidence that [plaintiff] is, in fact, receiving a pension."

Russo v. Lorenzo, 67 So. 3d 1165 - Fla: Dist. Court of Appeals, 4th Dist. 2011 (**WD**). The trial court ruled that widow's benefit was a collateral source, and did not allow defense to question plaintiff's economic expert about the wife's continuing benefits from her late husband's retirement plan. (Husband was a police officer who had not yet reached retirement age and was not yet vested in the retirement plan, but his wife immediately started to receive retirement/death benefits upon her husband's death). The appeals court said the question was whether the death benefit was to be considered a pension, for which evidence was to be permitted, as opposed to life insurance which was not permitted as a collateral source. Upon reversal, the appeals court stated: "Although described as a 'death benefit,' we reject the notion that the monthly payment to the wife, derived from Officer Lorenzo's participation in the retirement plan, is equivalent to 'life insurance' within the meaning of the collateral source statute."

4. Qualifications Involving Admissibility of Evidence Pertaining to Age of Retirement

Griesser v. National Railroad Passenger Corporation, 2000 PA Super 313; 761 A.2d 606 (**PI-FELA**). Trial court permitted the defendant to repeatedly inject collateral source evidence into the proceedings. The plaintiff was 45 at the time of trial with damages projected for lost earning capacity to ages of 65 or 70. Plaintiff's expert was asked on cross examination if he was aware of retirement benefits available to railroad workers with 30 years of experience at age 60, adding that if plaintiff retired at age 62 he would be receiving basically as much from pension benefits as from continuing to work. The Pennsylvania Superior Court, citing *Eichel*, reversed the trial court decision to admit evidence about plaintiff's retirement benefits in a way that violated the collateral source rule.

Norfolk Southern Railway Corp. v. Tiller, 944 A.2d 1272 (Md. App. 2008) (**PI-FELA**). Plaintiff was employed by the Norfolk Southern Railway for 29 years and 5 months and was just under age 52 at the time of injury and testified that he intended to work until age 65. Based on CSR, the trial court granted a motion to preclude defense's expert from testifying that plaintiff would be eligible to retire "with full benefits" at age 60 under the railroad's "30/60" retirement policy. The appeals court noted that "…employee's eligibility for retirement benefits at a particular age … is unquestionably relevant evidence as to

the probable age at which the employee might have been expected to stop working." However, despite such evidence being "... indisputably both relevant and material, [it] is on a direct collision course... with the massive and imposing bulk of the collateral source rule...[which in Maryland] traces back to 1899."

CSX Transportation v. Pitts, 38 A. 3d 445 - Md: Court of Special Appeals 2012, and CSX Transportation v. Pitts, 61 A. 3d 767 - Md: Court of Appeals 2013 (**PI-FELA**). Plaintiff was 59 at time of trial and contended that, but for his injury, he would have retired at age 67 or 68. Defense was not allowed to question plaintiff's expert about the average age of retirement for railroad employees, which would have shown that his planned retirement age would have been substantially higher than the age when most railroad employees retire and become eligible to receive pensions. Referencing *Tiller* [see Table App. A-1, Subtopic 4, previously cited], the Court of Special Appeals rejected defense's appeal and held that "... evidence of an employee's expected retirement age was not an exception to the collateral source rule...[and] is not admissible to diminish a plaintiff's damages." The Court of Special Appeals added that defense wished to offer "... purported statistical information that 'the overwhelming majority of people that retire in the railroad industry were, in fact, 60 years old' [but since this did not relate to the plaintiff individually it fell] ... within the trial judge's discretion [to exclude]." The following year, the appeals court offered this somewhat clarifying distinction that "...although retirement eligibility information in a FELA case is barred by the collateral source rule, statistics about average retirement age for railroad workers is not."

Giza v. BNSF Railway Company, 2014 Iowa Sup. LEXIS 19 (Iowa 2014) (**PI-FELA**). In a case similar to *CSX v. Pitts* (previously cited), here the injured plaintiff who worked for BNSF Railway Company was 59 at the time of injury and claimed he planned to work until age 66. Defense tried to counter this claim by attempting to introduce evidence that the plaintiff was eligible to retire with full benefits at age 60, that the plaintiff had checked on the railroad's website regarding his retirement benefits, and also by offering statistical evidence that most railroad employees with 30 years of service retire at age 60 noting that employees with 30+ years of service retire on average at age 60.7. The trial court prohibited defense from overriding this statistical evidence, but was reversed. The Iowa Supreme court agreed with the plaintiff regarding precluding evidence about the availability of retirement benefits for employees meeting 30/60 criteria, but reversed the trial court's exclusion of evidence concerning the retirement pattern of railroad workers. The appeals court reiterated the Pitts decision which stated: "Use of industry statistics about average retirement age

in this context is not evidence of other compensation the plaintiff would receive for the same damage, but rather, evidence that shows that the full amount of lost wages claimed by the plaintiff may not exist. In other words, the tables may cast doubt on a plaintiff's statement that he would work until a certain age, and thus suggest to the fact-finder that the lost wage claim was exaggerated. . .”

5. Qualifications Involving Admissibility of Evidence Not Pertaining to Age of Retirement

Matter of Adventure Bound Sports, Inc., 858 F. Supp. 1192 (S.D. Ga. 1994) (**WD**). This was a wrongful death case in which compensation for loss of military retirement income was sought by the decedent's family. The district court ruled that claimant's pecuniary losses need not be established with mathematical precision, but that “the amount awarded must bear some relation to the evidence and cannot be based on speculation.”

Oden v. Chemung County Industrial Development Agency, 87 N.Y.2d 81; 661 N.E.2d 142; 637 N.Y.S. 2d 670 (N.Y. 1995) (**PI-Non-FELA**). The trial court accepted the specific amounts of calculated losses for, among other things, lost future earnings and employee benefits as well as the loss of ordinary future pension benefits. However, plaintiff had disability retirement benefits that exceeded in present value the lost future pension benefits, and the trial court used this greater amount of disability retirement benefits to reduce the overall award. Appeals court modified this verdict by restoring the original award for lost future earnings and employee benefits and adjusted the total award upward. The appeals court held that “where a jury award for a discrete category of economic loss is wholly satisfied and in fact exceeded by a collateral source of the very same category, . . .[the law] operates only to eliminate the jury award for that category.” In other words, only the award for lost pension benefits was sufficiently related to the collateral disability retirement benefits to qualify for the offset. (See Table App. A-1, Subtopic 3, *Rotolo* case, for more expansive but similar logic.)

Firmes v. Chase Manhattan, 50 AD 3d 18 - NY: Appellate Div., 2nd Dept. 2008 (**PI-Non-FELA**). After being injured, the plaintiff was eligible to apply for Social Security disability. This potential collateral source offset posed a dilemma for defense. If it filed for a collateral source offset hearing before the application was made this would have involved an offset for a collateral payment not yet in existence. In a post-trial motion during which plaintiff apparently had been receiving SSDI payments, defense requested a collateral source hearing. However, the appeals court denied this request as untimely. It is unclear whether the same dilemma and results would be as likely to

apply if this were a private disability pension case, given the typically shorter lead times for approval in cases involving private pensions vs. Social Security Disability Insurance

Cohen v. Cuomo, 2009 N.J. Super. Unpub. LEXIS 2290 (N.J. Super. 2009) (**PI-Non-FELA**). Plaintiff's expert testified that the plaintiff lost what would have been a fully vested pension. However, the expert relied upon a key information source that defense claimed was "hearsay," which the trial court agreed should be excluded, rather than rebutted on cross-examination. The appeals court upheld this exclusion because the plaintiff's expert could not provide "foundational support for the use of hearsay evidence."

Appendix B: Same Cases Based on Federal Employment Retirement System

- ### Table App. B-1a: Base Case, No Injury, Normal Retirement

Cells in Table App. B-1a, Column 3, "Salary" are incremented annually based on the 2% annual COLA assumptions and the General Schedule for Grade and Step increases published by the Office of Personnel Management in its Pay & Leave Salaries and Wages table effective January 2018, shown in Column 4 and labeled "COLA+Step for Sal & Pens." Column 3 salaries are "highlighted" for ages 62, 63, and 64 because they are the basis for the "High-3 Average Salary" as of the 65th birthday for the "no injury, normal retirement" of the hypothetical employee, shown as $60,398.22 in Column 5 "Pension (w/ COLA)." Column 6 shows the "Employee Contribution" which is 4.4% of each year's salary. Columns 5 and 6 are combined in Column 7 as "Employee Contribution & Pension" (abbreviated), which has the same value for age 65 as in Column 5 once in retirement, since it is the first year that no employee contribution is required. Column 8 shows the cumulative sum of Column 7.

- ### Table App. B-1b: Injured at 55, Disability Retirement (w/ 30 Years of Service)

Cells in Table App. B-1b, Column 9-14, have the same meaning as Columns 3-8 in Table App. B-1a, above, except here salaries are "highlighted" for ages 52, 53, and 54 because they are the basis for the "High-3 Average Salary" as of the 55th birthday, given the assumption of a disabling injury on the that date. However, since the minimum retirement age for disabled employees born in 1948 or later is greater than 55, the option of an "immediate voluntary retirement" is precluded. Instead, for the first year on disability, the formula is 60%

of the "High-Three Average Salary" minus 100% of Social Security benefits. This is calculated to be $47,149.48 (= $112,608.13 x .6 - $20,415.4), highlighted in column 11 and repeated in Column 13. For the second year on disability, the disabled employee now has the option of taking his "earned annuity" instead of 40% of the "High-Three Average Salary" minus 60% of Social Security benefits. This earned annuity is slightly higher so it is used here. The second year pension is thus calculated as the "High-Three Average Salary" x .01 x years of service. The second year pension is $33,782.44 (= $112,608.13 x .01 x 30), highlighted in Column 11 and repeated in Column 13. Pension values are also highlighted for age 62, when FERS disability pensions are recast, essentially representing the annuity one would have received if continuing to work until the day before one's 62 birthday. Based on the High-Three Average Salary from ages 59, 60 and 61 of $129,351.35 had the person remained employed, the recast pension annuity is calculated to be $52,646.00 (= $129,351.35 x .011 x 37 years). This pension amount would continue to grow at the assumed COLA to age 65 and beyond, for direct contrast with that of "no injury, normal retirement."

- **Table App. B-1c: Injured at 35, Disability Retirement (w/ 10 Years of Service)**

Cells in Table App. B-1c, Column 15-20, have the same meaning as the six columns referenced in the prior two tables, except here salaries are highlighted for ages 32, 33, and 34 because they are the basis for the "High-3 Average Salary" as of the 35th birthday, given the assumption of a disabling injury on the that date. Using the same formula just described, the first year disability pension is now calculated to be $36,120.34 (= $68,801.22 x .6 - $5,160.89). For the second year, the disabled retiree again has the choice of the reduced disability pension or the earned annuity. However, in Case 1c, the pension based on the earned annuity is relatively low due to the person having only earned 10 years of service. Instead, the standard second year disability formula offers a higher pension than the earned annuity even with its required receipt of only 40% of the "High-3 Average Salary" minus 60% of the Social Security benefit. Thus, the second year disability pension is calculated to be $24,424.25 (= $68,801.22 x .4 - $3,096.23). This amount is assumed to grow until age 62 based on the same 2% COLA. Finally, as with Case 1b, in Case 1c the FERS pension is recast as if the person had continued working until the day before his 62nd birthday, and equals the same age 62 value of $52,646.00. Also highlighted is age 65, for direct contrast with that of "no injury, normal retirement."

Table App. B-1a. Base Case, No Injury, Normal Retirement

1	2	3	4	5	6	7	8
				Case 1a			
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
1	25	50,000.00	5.33%		(2,200.00)	(2,200.00)	(2,200.00)
2	26	52,666.62	5.23%		(2,317.33)	(2,317.33)	(4,517.33)
3	27	55,418.83	5.12%		(2,438.43)	(2,438.43)	(6,955.76)
4	28	58,259.00	2.00%		(2,563.40)	(2,563.40)	(9,519.16)
5	29	59,424.18	5.03%		(2,614.66)	(2,614.66)	(12,133.82)
6	30	62,413.35	2.00%		(2,746.19)	(2,746.19)	(14,880.01)
7	31	63,661.61	4.94%		(2,801.11)	(2,801.11)	(17,681.12)
8	32	66,807.20	2.00%		(2,939.52)	(2,939.52)	(20,620.63)
9	33	68,143.34	4.86%		(2,998.31)	(2,998.31)	(23,618.94)
10	34	71,453.11	2.00%		(3,143.94)	(3,143.94)	(26,762.88)
11	35	72,882.18	2.00%		(3,206.82)	(3,206.82)	(29,969.69)
12	36	74,339.82	4.78%		(3,270.95)	(3,270.95)	(33,240.65)
13	37	77,891.56	2.00%		(3,427.23)	(3,427.23)	(36,667.87)
14	38	79,449.39	2.00%		(3,495.77)	(3,495.77)	(40,163.65)
15	39	81,038.38	4.70%		(3,565.69)	(3,565.69)	(43,729.34)
16	40	84,849.32	2.00%		(3,733.37)	(3,733.37)	(47,462.71)

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Table App. B-1a. (continued)

	1	2	3	4	5	6	7	8
	Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
Case 1a
	17	41	86,546.31	2.00%		(3,808.04)	(3,808.04)	(51,270.74)
	18	42	88,277.24	4.63%		(3,884.20)	(3,884.20)	(55,154.94)
	19	43	92,365.81	2.00%		(4,064.10)	(4,064.10)	(59,219.04)
	20	44	94,213.13	2.00%		(4,145.38)	(4,145.38)	(63,364.42)
	21	45	96,097.39	2.00%		(4,228.29)	(4,228.29)	(67,592.70)
	22	46	98,019.34	2.00%		(4,312.85)	(4,312.85)	(71,905.55)
	23	47	99,979.73	2.00%		(4,399.11)	(4,399.11)	(76,304.66)
	24	48	101,979.32	2.00%		(4,487.09)	(4,487.09)	(80,791.75)
	25	49	104,018.91	2.00%		(4,576.83)	(4,576.83)	(85,368.58)
	26	50	106,099.29	2.00%		(4,668.37)	(4,668.37)	(90,036.95)
	27	51	108,221.27	2.00%		(4,761.74)	(4,761.74)	(94,798.69)
	28	52	110,385.70	2.00%		(4,856.97)	(4,856.97)	(99,655.66)
	29	53	112,593.41	2.00%		(4,954.11)	(4,954.11)	(104,609.77)
	30	54	114,845.28	2.00%		(5,053.19)	(5,053.19)	(109,662.96)
	31	55	117,142.19	2.00%		(5,154.26)	(5,154.26)	(114,817.22)
	32	56	119,485.03	2.00%		(5,257.34)	(5,257.34)	(120,074.56)

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Table App. B-1a. (continued)

1	2	3	4	5	6	7	8
				Case 1a			
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
33	57	121,874.73	2.00%		(5,362.49)	(5,362.49)	(125,437.05)
34	58	124,312.23	2.00%		(5,469.74)	(5,469.74)	(130,906.79)
35	59	126,798.47	2.00%		(5,579.13)	(5,579.13)	(136,485.92)
36	60	129,334.44	2.00%		(5,690.72)	(5,690.72)	(142,176.63)
37	61	131,921.13	2.00%		(5,804.53)	(5,804.53)	(147,981.16)
38	62	134,559.55	2.00%		(5,920.62)	(5,920.62)	(153,901.78)
39	63	137,250.74	2.00%		(6,039.03)	(6,039.03)	(159,940.82)
40	64	139,995.76	2.00%		(6,159.81)	(6,159.81)	(166,100.63)
41	65		2.00%	**60,398.22**	-	**60,398.22**	(105,702.41)
42	66		2.00%	61,606.19	-	61,606.19	(44,096.22)
43	67		2.00%	62,838.31	-	62,838.31	18,742.09
44	68		2.00%	64,095.07	-	64,095.07	82,837.16
45	69		2.00%	65,376.98	-	65,376.98	148,214.14
46	70		2.00%	66,684.52	-	66,684.52	214,898.65
47	71		2.00%	68,018.21	-	68,018.21	282,916.86
48	72		2.00%	69,378.57	-	69,378.57	352,295.43

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Table App. B-1a. (continued)

1	2	3	4	5	6	7	8
				Case 1a			
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
49	73		2.00%	70,766.14	-	70,766.14	423,061.57
50	74		2.00%	72,181.46	-	72,181.46	495,243.04
51	75		2.00%	73,625.09	-	73,625.09	568,868.13
52	76		2.00%	75,097.60	-	75,097.60	643,965.73
53	77		2.00%	76,599.55	-	76,599.55	720,565.27
54	78		2.00%	78,131.54	-	78,131.54	798,696.81
55	79		2.00%	79,694.17	-	79,694.17	878,390.98
56	80		2.00%	81,288.05	-	81,288.05	959,679.03
57	81		2.00%	82,913.81	-	82,913.81	1,042,592.85
58	82		2.00%	84,572.09	-	84,572.09	1,127,164.94
59	83		2.00%	86,263.53	-	86,263.53	1,213,428.47
60	84		2.00%	87,988.80	-	87,988.80	1,301,417.27
61	85		2.00%	89,748.58	-	89,748.58	1,391,165.85

Table App. B-1b. Injured at 55, Disability Retirement (w/ 30 Years of Service)

1	2	9	10	11	12	13	14
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
				Case 1b			
1	25	50,000.00	5.33%		(2,200.00)	(2,200.00)	(2,200.00)
2	26	52,666.62	5.23%		(2,317.33)	(2,317.33)	(4,517.33)
3	27	55,418.83	5.12%		(2,438.43)	(2,438.43)	(6,955.76)
4	28	58,259.00	2.00%		(2,563.40)	(2,563.40)	(9,519.16)
5	29	59,424.18	5.03%		(2,614.66)	(2,614.66)	(12,133.82)
6	30	62,413.35	2.00%		(2,746.19)	(2,746.19)	(14,880.01)
7	31	63,661.61	4.94%		(2,801.11)	(2,801.11)	(17,681.12)
8	32	66,807.20	2.00%		(2,939.52)	(2,939.52)	(20,620.63)
9	33	68,143.34	4.86%		(2,998.31)	(2,998.31)	(23,618.94)
10	34	71,453.11	2.00%		(3,143.94)	(3,143.94)	(26,762.88)
11	35	72,882.18	2.00%		(3,206.82)	(3,206.82)	(29,969.69)
12	36	74,339.82	4.78%		(3,270.95)	(3,270.95)	(33,240.65)
13	37	77,891.56	2.00%		(3,427.23)	(3,427.23)	(36,667.87)
14	38	79,449.39	2.00%		(3,495.77)	(3,495.77)	(40,163.65)
15	39	81,038.38	4.70%		(3,565.69)	(3,565.69)	(43,729.34)

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Table App. B-1b.   (continued)

Case 1b

1	2	9	10	11	12	13	14
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
16	40	84,849.32	2.00%		(3,733.37)	(3,733.37)	(47,462.71)
17	41	86,546.31	2.00%		(3,808.04)	(3,808.04)	(51,270.74)
18	42	88,277.24	4.63%		(3,884.20)	(3,884.20)	(55,154.94)
19	43	92,365.81	2.00%		(4,064.10)	(4,064.10)	(59,219.04)
20	44	94,213.13	2.00%		(4,145.38)	(4,145.38)	(63,364.42)
21	45	96,097.39	2.00%		(4,228.29)	(4,228.29)	(67,592.70)
22	46	98,019.34	2.00%		(4,312.85)	(4,312.85)	(71,905.55)
23	47	99,979.73	2.00%		(4,399.11)	(4,399.11)	(76,304.66)
24	48	101,979.32	2.00%		(4,487.09)	(4,487.09)	(80,791.75)
25	49	104,018.91	2.00%		(4,576.83)	(4,576.83)	(85,368.58)
26	50	106,099.29	2.00%		(4,668.37)	(4,668.37)	(90,036.95)
27	51	108,221.27	2.00%		(4,761.74)	(4,761.74)	(94,798.69)
28	52	**110,385.70**	2.00%		(4,856.97)	(4,856.97)	(99,655.66)
29	53	**112,593.41**	2.00%		(4,954.11)	(4,954.11)	(104,609.77)
30	54	**114,845.28**	2.00%		(5,053.19)	(5,053.19)	(109,662.96)

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Table App. B-1b. (continued)

1	2	9	10	11	12	13	14
					Case 1b		
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
31	55			**47,149.48**	-	**47,149.48**	(62,513.49)
32	56			**33,782.44**		33,782.44	(28,731.05)
33	57		2.00%	34,458.09		34,458.09	5,727.04
34	58		2.00%	35,147.25		35,147.25	40,874.29
35	59		2.00%	35,850.19		35,850.19	76,724.49
36	60		2.00%	36,567.20		36,567.20	113,291.68
37	61		2.00%	37,298.54		37,298.54	150,590.23
38	62		2.00%	**52,646.00**		**52,646.00**	203,236.22
39	63		2.00%	53,698.92		53,698.92	256,935.14
40	64		2.00%	54,772.90		54,772.90	311,708.04
41	65		2.00%	**55,868.35**		**55,868.35**	367,576.39
42	66		2.00%	56,985.72		56,985.72	424,562.11
43	67		2.00%	58,125.44		58,125.44	482,687.55
44	68		2.00%	59,287.94		59,287.94	541,975.49
45	69		2.00%	60,473.70		60,473.70	602,449.20

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Table App. B-1b. (continued)

	1	2	9	10	11	12	13	14
					Case 1b			
	Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
	46	70		2.00%	61,683.18		61,683.18	664,132.37
	47	71		2.00%	62,916.84		62,916.84	727,049.22
	48	72		2.00%	64,175.18		64,175.18	791,224.39
	49	73		2.00%	65,458.68		65,458.68	856,683.07
	50	74		2.00%	66,767.85		66,767.85	923,450.93
	51	75		2.00%	68,103.21		68,103.21	991,554.14
	52	76		2.00%	69,465.28		69,465.28	1,061,019.42
	53	77		2.00%	70,854.58		70,854.58	1,131,874.00
	54	78		2.00%	72,271.67		72,271.67	1,204,145.67
	55	79		2.00%	73,717.11		73,717.11	1,277,862.78
	56	80		2.00%	75,191.45		75,191.45	1,353,054.23
	57	81		2.00%	76,695.28		76,695.28	1,429,749.51
	58	82		2.00%	78,229.18		78,229.18	1,507,978.69
	59	83		2.00%	79,793.77		79,793.77	1,587,772.46
	60	84		2.00%	81,389.64		81,389.64	1,669,162.10
	61	85		2.00%	83,017.44		83,017.44	1,752,179.53

Table App. B-1c. Injured at 35, Disability Retirement (w/ 10 Years of Service)

Case 1c

1	2	15	16	17	18	19	20
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum PV, Contr & Pension
1	25	50,000.00	5.33%		(2,200.00)	(2,200.00)	(2,200.00)
2	26	52,666.62	5.23%		(2,317.33)	(2,317.33)	(4,517.33)
3	27	55,418.83	5.12%		(2,438.43)	(2,438.43)	(6,955.76)
4	28	58,259.00	2.00%		(2,563.40)	(2,563.40)	(9,519.16)
5	29	59,424.18	5.03%		(2,614.66)	(2,614.66)	(12,133.82)
6	30	62,413.35	2.00%		(2,746.19)	(2,746.19)	(14,880.01)
7	31	63,661.61	4.94%		(2,801.11)	(2,801.11)	(17,681.12)
8	32	66,807.20	2.00%		(2,939.52)	(2,939.52)	(20,620.63)
9	33	68,143.34	4.86%		(2,998.31)	(2,998.31)	(23,618.94)
10	34	71,453.11	2.00%		(3,143.94)	(3,143.94)	(26,762.88)
11	35			36,120.34	-	36,120.34	9,357.46
12	36			24,424.25	-	24,424.25	33,781.71
13	37		2.00%	24,912.74		24,912.74	58,694.45
14	38		2.00%	25,410.99	-	25,410.99	84,105.44
15	39		2.00%	25,919.21	-	25,919.21	110,024.66

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Table App. B-1c. (continued)

Case 1c

1	2	15	16	17	18	19	20
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum PV,Contr & Pension
16	40		2.00%	26,437.60	-	26,437.60	136,462.25
17	41		2.00%	26,966.35	-	26,966.35	163,428.60
18	42		2.00%	27,505.68	-	27,505.68	190,934.28
19	43		2.00%	28,055.79	-	28,055.79	218,990.07
20	44		2.00%	28,616.90	-	28,616.90	247,606.97
21	45		2.00%	29,189.24	-	29,189.24	276,796.21
22	46		2.00%	29,773.03	-	29,773.03	306,569.24
23	47		2.00%	30,368.49	-	30,368.49	336,937.73
24	48		2.00%	30,975.86	-	30,975.86	367,913.59
25	49		2.00%	31,595.38	-	31,595.38	399,508.96
26	50		2.00%	32,227.28	-	32,227.28	431,736.24
27	51		2.00%	32,871.83	-	32,871.83	464,608.07
28	52		2.00%	33,529.26	-	33,529.26	498,137.34
29	53		2.00%	34,199.85	-	34,199.85	532,337.19
30	54		2.00%	34,883.85	-	34,883.85	567,221.03

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Table App. B-1c.   (continued)

Case 1c

1	2	15	16	17	18	19	20
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum PV,Contr & Pension
31	55		2.00%	35,581.52	-	35,581.52	602,802.56
32	56		2.00%	36,293.15	-	36,293.15	639,095.71
33	57		2.00%	37,019.02	-	37,019.02	676,114.73
34	58		2.00%	37,759.40	-	37,759.40	713,874.13
35	59		2.00%	38,514.59	-	38,514.59	752,388.71
36	60		2.00%	39,284.88	-	39,284.88	791,673.59
37	61		2.00%	40,070.58	-	40,070.58	831,744.17
38	62		2.00%	**52,646.00**	-	**52,646.00**	884,390.17
39	63		2.00%	53,698.92	-	53,698.92	938,089.08
40	64		2.00%	54,772.90	-	54,772.90	992,861.98
41	65		2.00%	**55,868.35**	-	**55,868.35**	1,048,730.33
42	66		2.00%	56,985.72	-	56,985.72	1,105,716.05
43	67		2.00%	58,125.44	-	58,125.44	1,163,841.49
44	68		2.00%	59,287.94	-	59,287.94	1,223,129.43
45	69		2.00%	60,473.70	-	60,473.70	1,283,603.14

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Table App. B-1c.   (continued)

1	**2**	**15**	**16**	**17**	**18**	**19**	**20**
				Case 1c			
Years Worked	**Age @ Beg yr**	**Salary**	**COLA+Step for Sal & Pens**	**Pension (w/ COLA)**	**Employee Contribution**	**Empl Contr & Pension**	**Cum PV,Contr & Pension**
46	70		2.00%	61,683.18	-	61,683.18	1,345,286.32
47	71		2.00%	62,916.84	-	62,916.84	1,408,203.16
48	72		2.00%	64,175.18	-	64,175.18	1,472,378.33
49	73		2.00%	65,458.68	-	65,458.68	1,537,837.01
50	74		2.00%	66,767.85	-	66,767.85	1,604,604.87
51	75		2.00%	68,103.21	-	68,103.21	1,672,708.08
52	76		2.00%	69,465.28	-	69,465.28	1,742,173.36
53	77		2.00%	70,854.58	-	70,854.58	1,813,027.94
54	78		2.00%	72,271.67	-	72,271.67	1,885,299.61
55	79		2.00%	73,717.11	-	73,717.11	1,959,016.72
56	80		2.00%	75,191.45	-	75,191.45	2,034,208.17
57	81		2.00%	76,695.28	-	76,695.28	2,110,903.45
58	82		2.00%	78,229.18	-	78,229.18	2,189,132.63
59	83		2.00%	79,793.77	-	79,793.77	2,268,926.40
60	84		2.00%	81,389.64	-	81,389.64	2,350,316.04
61	85		2.00%	83,017.44	-	83,017.44	2,433,333.47

Appendix C: Same Cases Based on Example of Maryland State Reformed Contributory

Pension Benefit System and <u>Ordinary</u> Disability Retirement Formula

- **Table App. C-2a: Base Case, No Injury, Normal Retirement**

Cells in the Table App. C-2a, Column 3 ("Salary"), are incremented annually based on the 2% annual COLA assumptions and annual step rate increases from the State of Maryland Standard Salary Schedule, shown in Column 4 and labeled "COLA+Step for Sal & Pens." Column 3 salaries are "highlighted" for ages 60, 61, 62, 63, and 64 because they are the five highest consecutive annual salaries, i.e., the "Average Final Compensation" or AFC, as of the 65th birthday for the no injury, normal retirement of the hypothetical employee, shown as $99,449.74 in Column 5 "Pension (w/ COLA)." Column 6 shows the "Employee Contribution" which is 7% of each year's salary. Columns 5 and 6 are combined in Column 7 as "Employee Contribution & Pension" (abbreviated), which has the same value for age 65 as in Column 5 once in retirement, since it is the first year that no employee contribution is required. Column 8 shows the cumulative sum of Column 7.

- **Table App. C-2b: Injured at 55, Ordinary Disability Retirement (w/ 30 Years of Service)**

Cells in Table App. C-2b, Column 9-14, have the same meaning as Columns 3-8 in Table App. C-2a, above, except here salaries are "highlighted" for ages 50, 51, 52, 53, and 54 because they are the basis for the five-year AFC as of the 55th birthday, given the assumption of a disabling injury on the that date. Now the age-55 Pension (w/ COLA) is $81,583.42, highlighted in Column 11 and repeated in Column 13 for direct contrast with that of "no injury, normal retirement."

- **Table App. C-2c: Injured at 35, Ordinary Disability Retirement (w/ 10 Years of Service)**

Cells in Table App. C-2c, Column 15-20, have the same meaning as the six columns referenced in the prior two tables, except here salaries are highlighted for ages 30, 31, 32, 33, and 34 because they are the basis for the five-year AFC as of the 35th birthday, given the assumption of a disabling injury on that date. Now the age-35 Pension (w/ COLA) is $40.064.01, highlighted in Column 17 and repeated in Column 19 for direct contrast with that of "no injury, normal retirement."

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Table App. C-2a. MD, Ord Disability: Base Case, No Injury, Normal Retirement

1	2	3	4	5	6	7	8
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
				Case 2a			
1	25	50,000.00	5.81%		(3,500.00)	(3,500.00)	(3,500.00)
2	26	52,907.30	5.81%		(3,703.51)	(3,703.51)	(7,203.51)
3	27	55,983.64	5.82%		(3,918.86)	(3,918.86)	(11,122.37)
4	28	59,244.67	5.83%		(4,147.13)	(4,147.13)	(15,269.49)
5	29	62,699.94	5.84%		(4,389.00)	(4,389.00)	(19,658.49)
6	30	66,359.46	3.92%		(4,645.16)	(4,645.16)	(24,303.65)
7	31	68,960.80	3.92%		(4,827.26)	(4,827.26)	(29,130.91)
8	32	71,665.93	3.92%		(5,016.61)	(5,016.61)	(34,147.52)
9	33	74,477.78	3.93%		(5,213.44)	(5,213.44)	(39,360.97)
10	34	77,402.82	3.93%		(5,418.20)	(5,418.20)	(44,779.16)
11	35	80,441.48	3.93%		(5,630.90)	(5,630.90)	(50,410.07)
12	36	83,601.98	3.93%		(5,852.14)	(5,852.14)	(56,262.21)
13	37	86,887.09	3.93%		(6,082.10)	(6,082.10)	(62,344.30)
14	38	90,304.14	3.93%		(6,321.29)	(6,321.29)	(68,665.59)
15	39	93,854.66	3.93%		(6,569.83)	(6,569.83)	(75,235.42)
16	40	97,544.81	3.94%		(6,828.14)	(6,828.14)	(82,063.55)

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TableApp. C-2a. (continued)

1	2	3	4	5	6	7	8
					Case 2a		
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
17	41	101,385.78	3.94%		(7,097.00)	(7,097.00)	(89,160.56)
18	42	105,378.02	3.94%		(7,376.46)	(7,376.46)	(96,537.02)
19	43	109,527.58	3.94%		(7,666.93)	(7,666.93)	(104,203.95)
20	44	113,841.58	3.94%		(7,968.91)	(7,968.91)	(112,172.86)
21	45	118,325.73	2.00%		(8,282.80)	(8,282.80)	(120,455.66)
22	46	120,692.24	2.00%		(8,448.46)	(8,448.46)	(128,904.12)
23	47	123,106.09	2.00%		(8,617.43)	(8,617.43)	(137,521.54)
24	48	125,568.21	2.00%		(8,789.77)	(8,789.77)	(146,311.32)
25	49	128,079.57	2.00%		(8,965.57)	(8,965.57)	(155,276.89)
26	50	130,641.16	2.00%		(9,144.88)	(9,144.88)	(164,421.77)
27	51	133,253.99	2.00%		(9,327.78)	(9,327.78)	(173,749.55)
28	52	135,919.07	2.00%		(9,514.33)	(9,514.33)	(183,263.88)
29	53	138,637.45	2.00%		(9,704.62)	(9,704.62)	(192,968.51)
30	54	141,410.20	2.00%		(9,898.71)	(9,898.71)	(202,867.22)
31	55	144,238.40	2.00%		(10,096.69)	(10,096.69)	(212,963.91)
32	56	147,123.17	2.00%		(10,298.62)	(10,298.62)	(223,262.53)

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TableApp. C-2a. (continued)

Case 2a

1	2	3	4	5	6	7	8
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
33	57	150,065.63	2.00%		(10,504.59)	(10,504.59)	(233,767.12)
34	58	153,066.94	2.00%		(10,714.69)	(10,714.69)	(244,481.81)
35	59	156,128.28	2.00%		(10,928.98)	(10,928.98)	(255,410.79)
36	60	**159,250.85**	2.00%		(11,147.56)	(11,147.56)	(266,558.35)
37	61	**162,435.87**	2.00%		(11,370.51)	(11,370.51)	(277,928.86)
38	62	**165,684.58**	2.00%		(11,597.92)	(11,597.92)	(289,526.78)
39	63	**168,998.27**	2.00%		(11,829.88)	(11,829.88)	(301,356.66)
40	64	**172,378.24**	2.00%		(12,066.48)	(12,066.48)	(313,423.14)
41	65		2.00%	**99,449.74**	-	**99,449.74**	(213,973.40)
42	66		2.00%	101,438.73	-	101,438.73	(112,534.67)
43	67		2.00%	103,467.51	-	103,467.51	(9,067.16)
44	68		2.00%	105,536.86	-	105,536.86	96,469.70
45	69		2.00%	107,647.59	-	107,647.59	204,117.29
46	70		2.00%	109,800.55	-	109,800.55	313,917.84
47	71		2.00%	111,996.56	-	111,996.56	425,914.39
48	72		2.00%	114,236.49	-	114,236.49	540,150.88

TableApp. C-2a. (continued)

1	2	3	4	5	6	7	8
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
				Case 2a			
49	73		2.00%	116,521.22	-	116,521.22	656,672.10
50	74		2.00%	118,851.64	-	118,851.64	775,523.74
51	75		2.00%	121,228.68	-	121,228.68	896,752.42
52	76		2.00%	123,653.25	-	123,653.25	1,020,405.67
53	77		2.00%	126,126.31	-	126,126.31	1,146,531.98
54	78		2.00%	128,648.84	-	128,648.84	1,275,180.82
55	79		2.00%	131,221.82	-	131,221.82	1,406,402.64
56	80		2.00%	133,846.25	-	133,846.25	1,540,248.89
57	81		2.00%	136,523.18	-	136,523.18	1,676,772.07
58	82		2.00%	139,253.64	-	139,253.64	1,816,025.71
59	83		2.00%	142,038.71	-	142,038.71	1,958,064.42
60	84		2.00%	144,879.49	-	144,879.49	2,102,943.91
61	85		2.00%	147,777.08	-	147,777.08	2,250,720.99

Table App. C-2b. Injured at 55, Ordinary Disability Retirement (w/ 30 Years of Service)

Case 2b

1	2	9	10	11	12	13	14
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
1	25	50,000.00	5.81%		(3,500.00)	(3,500.00)	(3,500.00)
2	26	52,907.30	5.81%		(3,703.51)	(3,703.51)	(7,203.51)
3	27	55,983.64	5.82%		(3,918.86)	(3,918.86)	(11,122.37)
4	28	59,244.67	5.83%		(4,147.13)	(4,147.13)	(15,269.49)
5	29	62,699.94	5.84%		(4,389.00)	(4,389.00)	(19,658.49)
6	30	66,359.46	3.92%		(4,645.16)	(4,645.16)	(24,303.65)
7	31	68,960.80	3.92%		(4,827.26)	(4,827.26)	(29,130.91)
8	32	71,665.93	3.92%		(5,016.61)	(5,016.61)	(34,147.52)
9	33	74,477.78	3.93%		(5,213.44)	(5,213.44)	(39,360.97)
10	34	77,402.82	3.93%		(5,418.20)	(5,418.20)	(44,779.16)
11	35	80,441.48	3.93%		(5,630.90)	(5,630.90)	(50,410.07)
12	36	83,601.98	3.93%		(5,852.14)	(5,852.14)	(56,262.21)
13	37	86,887.09	3.93%		(6,082.10)	(6,082.10)	(62,344.30)
14	38	90,304.14	3.93%		(6,321.29)	(6,321.29)	(68,665.59)
15	39	93,854.66	3.93%		(6,569.83)	(6,569.83)	(75,235.42)

(continued on next page)

Table App. C-2b. (continued)

Case 2b

1 Years Worked	2 Age @ Beg yr	9 Salary	10 COLA+Step for Sal & Pens	11 Pension (w/ COLA)	12 Employee Contribution	13 Empl Contr & Pension	14 Cum Empl Contr & Pension
16	40	97,544.81	3.94%		(6,828.14)	(6,828.14)	(82,063.55)
17	41	101,385.78	3.94%		(7,097.00)	(7,097.00)	(89,160.56)
18	42	105,378.02	3.94%		(7,376.46)	(7,376.46)	(96,537.02)
19	43	109,527.58	3.94%		(7,666.93)	(7,666.93)	(104,203.95)
20	44	113,841.58	3.94%		(7,968.91)	(7,968.91)	(112,172.86)
21	45	118,325.73	2.00%		(8,282.80)	(8,282.80)	(120,455.66)
22	46	120,692.24	2.00%		(8,448.46)	(8,448.46)	(128,904.12)
23	47	123,106.09	2.00%		(8,617.43)	(8,617.43)	(137,521.54)
24	48	125,568.21	2.00%		(8,789.77)	(8,789.77)	(146,311.32)
25	49	128,079.57	2.00%		(8,965.57)	(8,965.57)	(155,276.89)
26	50	**130,641.16**	2.00%		(9,144.88)	(9,144.88)	(164,421.77)
27	51	**133,253.99**	2.00%		(9,327.78)	(9,327.78)	(173,749.55)
28	52	**135,919.07**	2.00%		(9,514.33)	(9,514.33)	(183,263.88)
29	53	**138,637.45**	2.00%		(9,704.62)	(9,704.62)	(192,968.51)
30	54	**141,410.20**	2.00%		(9,898.71)	(9,898.71)	(202,867.22)

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Table App. C-2b. (continued)

Case 2b

1	2	9	10	11	12	13	14
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
31	55		2.00%	**81,583.42**	-	**81,583.42**	(121,283.80)
32	56		2.00%	83,215.09		83,215.09	(38,068.70)
33	57		2.00%	84,879.39		84,879.39	46,810.69
34	58		2.00%	86,576.98		86,576.98	133,387.67
35	59		2.00%	88,308.52		88,308.52	221,696.19
36	60		2.00%	90,074.69		90,074.69	311,770.88
37	61		2.00%	91,876.19		91,876.19	403,647.07
38	62		2.00%	93,713.71		93,713.71	497,360.78
39	63		2.00%	95,587.98		95,587.98	592,948.76
40	64		2.00%	97,499.74		97,499.74	690,448.50
41	65		2.00%	99,449.74		99,449.74	789,898.24
42	66		2.00%	101,438.73		101,438.73	891,336.97
43	67		2.00%	103,467.51		103,467.51	994,804.48
44	68		2.00%	105,536.86		105,536.86	1,100,341.34
45	69		2.00%	107,647.59		107,647.59	1,207,988.93

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Table App. C-2b. (continued)

Case 2b

1	2	9	10	11	12	13	14
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
46	70		2.00%	109,800.55		109,800.55	1,317,789.48
47	71		2.00%	111,996.56		111,996.56	1,429,786.03
48	72		2.00%	114,236.49		114,236.49	1,544,022.52
49	73		2.00%	116,521.22		116,521.22	1,660,543.74
50	74		2.00%	118,851.64		118,851.64	1,779,395.38
51	75		2.00%	121,228.68		121,228.68	1,900,624.06
52	76		2.00%	123,653.25		123,653.25	2,024,277.30
53	77		2.00%	126,126.31		126,126.31	2,150,403.62
54	78		2.00%	128,648.84		128,648.84	2,279,052.46
55	79		2.00%	131,221.82		131,221.82	2,410,274.27
56	80		2.00%	133,846.25		133,846.25	2,544,120.53
57	81		2.00%	136,523.18		136,523.18	2,680,643.71
58	82		2.00%	139,253.64		139,253.64	2,819,897.35
59	83		2.00%	142,038.71		142,038.71	2,961,936.06
60	84		2.00%	144,879.49		144,879.49	3,106,815.55
61	85		2.00%	147,777.08		147,777.08	3,254,592.63

Table App. C-2c. Injured at 35, Ordinary Disability Retirement (w/ 10 Years of Service)

Case 2c

1	2	15	16	17	18	19	20
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
1	25	50,000.00	5.81%		(3,500.00)	(3,500.00)	(3,500.00)
2	26	52,907.30	5.81%		(3,703.51)	(3,703.51)	(7,203.51)
3	27	55,983.64	5.82%		(3,918.86)	(3,918.86)	(11,122.37)
4	28	59,244.67	5.83%		(4,147.13)	(4,147.13)	(15,269.49)
5	29	62,699.94	5.84%		(4,389.00)	(4,389.00)	(19,658.49)
6	30	66,359.46	3.92%		(4,645.16)	(4,645.16)	(24,303.65)
7	31	68,960.80	3.92%		(4,827.26)	(4,827.26)	(29,130.91)
8	32	71,665.93	3.92%		(5,016.61)	(5,016.61)	(34,147.52)
9	33	74,477.78	3.93%		(5,213.44)	(5,213.44)	(39,360.97)
10	34	77,402.82	3.93%		(5,418.20)	(5,418.20)	(44,779.16)
11	35		2.00%	43,064.01	-	**43,064.01**	(1,715.15)
12	36		2.00%	43,925.29	-	43,925.29	42,210.15
13	37		2.00%	44,803.80	-	44,803.80	87,013.95
14	38		2.00%	45,699.88	-	45,699.88	132,713.82
15	39		2.00%	46,613.87	-	46,613.87	179,327.70

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Table App. C-2c. (continued)

1	2	15	16	17	18	19	20
				Case 2c			
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
16	40		2.00%	47,546.15	-	47,546.15	226,873.85
17	41		2.00%	48,497.07	-	48,497.07	275,370.92
18	42		2.00%	49,467.02	-	49,467.02	324,837.94
19	43		2.00%	50,456.36	-	50,456.36	375,294.29
20	44		2.00%	51,465.48	-	51,465.48	426,759.78
21	45		2.00%	52,494.79	-	52,494.79	479,254.57
22	46		2.00%	53,544.69	-	53,544.69	532,799.26
23	47		2.00%	54,615.58	-	54,615.58	587,414.84
24	48		2.00%	55,707.89	-	55,707.89	643,122.74
25	49		2.00%	56,822.05	-	56,822.05	699,944.79
26	50		2.00%	57,958.49	-	57,958.49	757,903.28
27	51		2.00%	59,117.66	-	59,117.66	817,020.95
28	52		2.00%	60,300.02	-	60,300.02	877,320.96
29	53		2.00%	61,506.02	-	61,506.02	938,826.98
30	54		2.00%	62,736.14	-	62,736.14	1,001,563.12

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Case 2c

1	2	15	16	17	18	19	20
Years Worked	Age @ Beg yr	Salary	COLA+Step for Sal & Pens	Pension (w/ COLA)	Employee Contribution	Empl Contr & Pension	Cum Empl Contr & Pension
31	55		2.00%	63,990.86	-	63,990.86	1,065,553.98
32	56		2.00%	65,270.68	-	65,270.68	1,130,824.65
33	57		2.00%	66,576.09	-	66,576.09	1,197,400.74
34	58		2.00%	67,907.61	-	67,907.61	1,265,308.36
35	59		2.00%	69,265.76	-	69,265.76	1,334,574.12
36	60		2.00%	70,651.08	-	70,651.08	1,405,225.20
37	61		2.00%	72,064.10	-	72,064.10	1,477,289.30
38	62		2.00%	73,505.38	-	73,505.38	1,550,794.69
39	63		2.00%	74,975.49	-	74,975.49	1,625,770.18
40	64		2.00%	76,475.00	-	76,475.00	1,702,245.18
41	65		2.00%	78,004.50	-	78,004.50	1,780,249.68
42	66		2.00%	79,564.59	-	79,564.59	1,859,814.27
43	67		2.00%	81,155.88	-	81,155.88	1,940,970.15
44	68		2.00%	82,779.00	-	82,779.00	2,023,749.16
45	69		2.00%	84,434.58	-	84,434.58	2,108,183.74

Table App. C-2c. (continued)

				Case 2c			
1	**2**	**15**	**16**	**17**	**18**	**19**	**20**
Years Worked	**Age @ Beg yr**	**Salary**	**COLA+Step for Sal & Pens**	**Pension (w/ COLA)**	**Employee Contribution**	**Empl Contr & Pension**	**Cum Empl Contr & Pension**
46	70		2.00%	86,123.27	-	86,123.27	2,194,307.01
47	71		2.00%	87,845.74	-	87,845.74	2,282,152.75
48	72		2.00%	89,602.65	-	89,602.65	2,371,755.40
49	73		2.00%	91,394.71	-	91,394.71	2,463,150.10
50	74		2.00%	93,222.60	-	93,222.60	2,556,372.70
51	75		2.00%	95,087.05	-	95,087.05	2,651,459.75
52	76		2.00%	96,988.79	-	96,988.79	2,748,448.55
53	77		2.00%	98,928.57	-	98,928.57	2,847,377.12
54	78		2.00%	100,907.14	-	100,907.14	2,948,284.26
55	79		2.00%	102,925.28	-	102,925.28	3,051,209.54
56	80		2.00%	104,983.79	-	104,983.79	3,156,193.33
57	81		2.00%	107,083.46	-	107,083.46	3,263,276.79
58	82		2.00%	109,225.13	-	109,225.13	3,372,501.92
59	83		2.00%	111,409.64	-	111,409.64	3,483,911.56
60	84		2.00%	113,637.83	-	113,637.83	3,597,549.39
61	85		2.00%	115,910.59	-	115,910.59	3,713,459.97

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Journal Article
Ray, Clarence G. 1991. President's Comments: The Economic Expert and Civil Litigation. *Journal of Legal Economics* 1(1): 1–4.
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Book Article or Chapter

Hall, Robert E, and Victoria A. Lazear. 2000. Reference Guide on Estimation of Economic Losses in Damages Awards. In *Reference Manual on Scientific Evidence*. 2d ed. Federal Judicial Center. St. Paul, MN: West Group.

Website

Ireland, Thomas. 2006. Court Decisions of Special Interest to Economists. In *Useful information about forensic economics*. University of Missouri Saint Louis. [Last visited April 22, 2009]. Available: http://www.umsl.edu/ divisions/artscience/economics/ForensicEconomics/CasesFE.htm