Actuarial Valuations of the Railroad Retirement Board

And Railroad Worklife Tables: A Reassessment 2/10/98

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Abstract

The Railroad Retirement Act of 1974 requires that the Railroad Retirement Board, at intervals of not longer than three years, estimate the liabilities of the RRB system. These actuarial valuations can and have been used to create Railroad Worklife Tables which are used by some economic experts in earnings loss estimates for both personal injury and wrongful death. Only Dale Funderburk (1988) has made an assessment of the uses of this data source, though a very important paper by Gary R. Skoog and James E. Ciecka on this topic is forthcoming. This short paper reconsiders and disagrees with several points made by Funderburk and suggests other uses that can be made of RRB Actuarial Valuations in railroad related litigation.

Actuarial Valuations of the Railroad Retirement Board And Railroad Worklife Tables: A Reassessment 2/10/98

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Introduction

The Railroad Retirement Act of 1974 requires that the Railroad Retirement Board, at intervals of not longer than three years, estimate the liabilities of the RRB system. The *20th Actuarial Valuation of the Assets and Liabilities Under the Railroad Retirement Acts as of December 31, 1995* was published in August 1997 and is the most recent valuation as this paper was written. Actuarial Valuations of the Railroad Retirement Board contain much of the information necessary for the construction of worklife expectancy tables specific to the railroad industry. Charles Sherfey of Coopers & Lybrand in Chicago has used these actuarial valuations for a number of years to compile "railroad worklife expectancy" tables under contract for the Association of American Railroads. These tables have then been made available to railroads and defense firms representing railroads and used in both personal injury and wrongful death litigation.

These tables were analyzed by Dale Funderburk in 1988, who reached several negative conclusions about them. The purpose of this paper is to reconsider Funderburk's conclusions, some of which are flawed, but also to point out important different uses that can be made of Actuarial Valuations of the Railroad Retirement Board to develop loss assessments involving railroad workers in FELA litigation.

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Funderburk's Analysis

Funderburk's 1988 analysis consists of a comparison of Charles Sherfey's 1985 railroad worklife expectancy tables with the worklife tables in Bureau of Labor Statistics Bulletin 2254, *Worklife Estimates: Effects of Race and Education*, published in February 1986. Sherfey's 1985 tables were based on the *16th Actuarial Valuation*, dated December 31, 1983. Funderburk develops comparisons that are confined to male workers and does not identify Charles Sherfey as the author of the railroad worklife expectancy tables. Funderburk's descriptive analysis consists of trying to explain differences between worklife expectancy values taken from the two sources, which are taken from relatively concurrent time periods. Although Funderburk's paper was published in 1988, the issues addressed in his paper have not significantly changed during the past ten years.

Funderburk's most important conclusions about differences between the tables themselves are that: (1) for most comparable male workers, RRB worklife expectancies are shorter than BLS worklife expectancies; but that (2) for workers approaching retirement at age 62, RRB worklife expectancies are greater than BLS worklife expectancies. Funderburk reasonably attributes this difference to the important pension benefits that accrue to railroad workers under the RRB pension system at age 62 (or with 30 years of experience at or after age 60) that give railroad workers a powerful incentive not to retire before age 62 (or with 30 years of experience at or after age 60) if workers are close to that point of qualification for benefits. This is still true and is still relevant to use of tables based on railroad worklife expectancy versus male worklife expectancy for all occupations.

Funderburk then attempted to explain shorter worklife expectancies of younger railroad workers compared with longer BLS worklife expectancies. First, he pointed out that railroad

worklife expectancy tables do not include post railroad employment in other industries. Second, he argues "that the worklife of railroad workers is shortened because they are more prone to be killed or otherwise die and become disabled than the average worker." To support this second argument, Funderburk cites data suggesting that the number of lost workday cases involving railroad transportation was more than sixty percent above the rate for the total private sector.

With this as a background, Funderburk criticizes the use of Sherfey's Railroad Worklife Expectancy Tables on three grounds: (1) that "to apply the railroad worklife expectancy tables in cases involving a defendant railroad would be to reward the railroad for maintaining an unsafe work environment;" (2) that "the failure of the compilers and/or distributors of the railroad worklife tables to make full documentation of them readily available for scrutiny by the scientific community represents a serious shortcoming;" and (3) that voluntary retirement appears to be a major determinant of table values, but "while voluntary early retirement decisions do reduce worklife expectancies, they do not reduce earning capacities of nonretiring workers." Funderburk concludes that Sherfey's Railroad Worklife Expectancy Tables should not be used for damage analysis in personal injury and wrongful death assessments.

Reassessing Funderburk's Arguments

Funderburk's first argument is a normative argument that railroads should not be permitted to gain from maintaining an unsafe work environment. If railroads maintain an unsafe work environment and the result is that many workers are injured, the result would be shorter worklife expectancies in railroad work. If these shorter worklife expectancies are then used in damage calculations of loss for those injured workers, Funderburk argues, the result is that the railroads receive a benefit from the unsafe work environment in the form of lower damage awards for injured workers. There are several problems with this process of reasoning. First and foremost,

it would not be up to economists to make this determination in the first place. Even if everything Funderburk said were true, the economist's job remains one of determining the value of the loss suffered by injured workers, not determining what is required by some self designated standard of fairness. If, indeed, the railroads were benefiting from maintaining an unsafe work environment, it would not be up to economic valuation experts to decide how to rectify that inequity. The job of an economic expert remains one of determining the amount of loss.

The normative logic used by Funderburk carries a strange legal implication. If the rationale is used that a damage award to an injured railroad worker (or his survivors) should be greater because of the malfeasance of the railroads in maintaining a safe work environment, it must follow that damages should be different with an on-the-job injury than with a similar injury caused by someone other than the employer railroad. The worker who is injured on the job should receive a larger sum of money than an equally injured worker whose identical injuries result from an automobile accident, since the tortuous driver is not responsible for the safety of the work environment of the railroad worker. There would be no reason to punish the driver of the other car for supposed dereliction of the responsibility of the railroads to maintain a safe work environment by giving the worker a higher damage award than that warranted by the true expected loss of the worker. The type of argument made by Funderburk confuses the issues of deterrence and compensation. If the railroads were guilty (and it would have to be collective guilt to justify any rejection of RRB based worklife expectancy) of negligence, there are better sources of safety regulation than increased tort awards in personal injury and wrongful death (Ireland and Rogers, 1993; Calfee and Rubin, 1992).

Second, Funderburk made no effort to compare safety records of the railroads with the safety records of other hard labor, outside work industries and occupations. Common sense

dictates that outside, hard labor work will result in more lost work days than inside, sedentary labor, regardless of the safety precautions taken by an employer. A comparison showing more lost workdays in railroad labor than lost workdays in the private sector as a whole simply confirms a common sense expectation. In and of itself, a higher than average injury rate for railroads in comparison with all occupations does not suggest that railroads maintain an unsafe work environment. In actual fact, the Transportation Research Board has found that Railroads provide one of the safest hard labor, outside work labor environments (Special Report 241, 1994). Thus this normative argument would be wrong, even if it were relevant.[1]

A third factor is the fact that railroad labor is paid higher wages than other occupations requiring the same levels of education because the labor is outside labor, is more difficult and has a higher chance of sickness or minor injuries on the job. This means that railroads are, in a sense, already paying for the lack of safety in their work environments through having to pay wages that include risk premiums for the dangers involved. In labor theory, at least, the present values of shorter labor market worklives and longer more sedentary worklives are compared by an equally qualified worker choosing between the two occupations. The railroad worker should receive higher pay for a shorter period and the sedentary worker should receive lower pay for a longer period. If adjusted for other utility factors involved in employment, the present values of the two streams should be otherwise equal. In this sense, Funderburk's value argument would depend on some notion that workers were unaware of the risks and hardships of railroad work when they made career choices. There is no reason to suppose that is true.

If it is presumed that the railroads collectively maintain as safe an environment as would be socially efficient (in the sense explained by Rubin and Calfee, 1992), the shortened worklife expectancy of railroad workers would be coupled with wage premiums sufficiently high to

compensate railroad workers for the risks being taken. These wage premiums would be payments to workers by railroads for the necessary risks being taken. If markets have worked effectively, the value of lost wages upon death should be similar for a railroad worker with higher pay, shorter worklife expectancy occupation and an equally skilled worker in a lower pay, longer worklife expectancy occupation.

Funderburk's second argument is that methodology used by Charles Sherfey in compiling the Railroad Worklife Tables are not adequately documented and available for peer review. The tables are prepared by Charles Sherfey under contract from the Association of American Railroads and do not contain documentary justification. As suggested by Funderburk, it would be highly desirable for Sherfey's methods of calculation were spelled out completely and the tables made generally available for examination by experts for both plaintiffs and defense. Funderburk is quite correct in this area. Even from the standpoint of their own interests, the American Association of Railroads would be wise to have Sherfey add such documentation so that it could be peer reviewed and validated by other researchers. In light of the *Daubert vs. Merrell Dow* (1993) decision of the United States Supreme Court, it seems unlikely that testimony based on non-peer reviewed calculations would be permitted at any appeals level.[2]

On the surface, the Sherfey tables appear to be reasonably accurately computed. Using the extensively peer reviewed BLS tables as a standard, Sherfey's numbers from the same period confirm common sense expectations. Hard outside labor would be expected to produce shorter worklife expectancies than for an average of all occupations, especially if post-railroad employment is statistically omitted from the Railroad Worklife Tables. It would also be expected that the gap would narrow and reverse itself as a worker approached age 62 pension eligibility, as actually occurs in the tables. Ideally, the best solution would be for the Railroad Retirement

Board itself to compute railroad worklife tables from its own data, which could then be coupled with estimates of post-railroad employment for the most accurate possible damage assessments. However, a second best solution will come into existence in the near future. James E. Ciecka and Gary R. Skoog were able to determine the methods employed by Sherfey well enough to regenerate the Railroad Worklife Tables based on the 19th Actuarial Valuation. Having regenerated Sherfey's numbers, they were able to point out important shortcomings in Sherfey's method, primarily that Sherfey's method was not an increment-decrement method as was used in the BLS (1986) Tables Sherfey used for his comparison.

Funderburk's third criticism is simply that any worklife expectancy calculation, by its nature, measures expected earnings rather than worklife capacity. Workers normally retire before they are physically forced to do so and Funderburk's arguments in this area would apply equally to BLS worklife expectancies. Funderburk is arguing here that workers should be compensated for the lost opportunity to work as well as lost probable work, an argument for which he can find other economists who are in agreement. This again is a legal issue rather than an economic argument. However, relative to BLS tables, this is not a specific shortcoming of the Sherfey tables.

Proper Use of Railroad Worklife Expectancies

Given the *Daubert* problems with Sherfey's tables, as mentioned above, it would be very dangerous for any economic expert to place exclusive reliance upon the existing Sherfey Railroad Worklife Tables in a damage analysis. While they are not grossly inaccurate, the absence of peer reviewed assessment, coupled with provision by an obviously biased source, make the tables very questionable as a foundation for analysis. Nevertheless, it does provide industry specific information about the railroad industry and knowledge of the tables can enhance the credibility of

anyone testifying in the area. Particularly after the revised Railroad Worklife Tables prepared by Ciecka and Skoog (1998) become available, there will be good reason to consider the existing railroad specific data. However, even the new tables should not be used without separate consideration of post-railroad employment (transition probabilities before final railroad retirement are included in the Skoog and Ciecka analysis).[3] A significant percentage of railroad workers (40 percent according to a spokesperson for the Bureau of the Actuary of the Railroad Retirement Board) have post railroad employment before beginning to receive RRB pensions at age 62. If a worker has been totally disabled, that component of lost earnings must be considered in any use of any type of Railroad Worklife Tables that may be developed. It is likely, however, that the earnings rate in the post-railroad period would be at substantially lowered earnings rates since workers are likely to have moved to more sedentary, lower paying positions.

Other Uses of RRB Actuarial Valuations

In cases involving railroad workers, the Actuarial Valuations of the Railroad Retirement Board provide a wealth of information with a variety of possible uses by forensic economists. Actuarial Valuations include information about age of entry of railroad workers (showing a median age of entry at 26.2 in the 18th Valuation), with age percentages by five year intervals. Information is provided about average creditable compensation per service month, by age at entry and by calendar year of entry. There is even information about remarriage experience of widows of railroad workers, with comparisons, for example, between 1982 and 1988 anniversaries of widowhood. Another useful bit of information from the 18th Actuarial Valuation is that only 6.2 percent of the 21 percent (16.1 percent by the railroad and 4.9 percent by the worker) of earnings (up to the maximum for Tier II) is actually being used to fund the pensions of current workers.

The other 14.8 percent is being used to cover previously acquired liabilities. The Actuarial Valuations contain a great deal of other useful information as well. Copies can be obtained by writing to the Railroad Retirement Board, 844 Rush Street, Chicago, Illinois 60611.

Endnotes

1. Another issue relates to the fact that the Federal Employer's Liability Act sets a strict liability standard for workers injured on the job. Strict liability creates a lower burden of proof for showing that the employer is liable for economic damages resulting from an injury. In itself, strict liability would not change the number of injuries actually occurring in an occupation, but it does have an effect on the incentive to report injuries in such a way that they would be included in injury statistics. Both normal expectations and anecdotal evidence suggest that injuries under FELA are more likely to be reported than injuries in other occupations, where damage claims would be held to a higher standard of negligence on the part of an employer. As such, railroad workers have an incentive to report minor knee, back and other injuries that might not be reported in other occupations.

2. This problem will soon be eliminated. In a paper scheduled for publication in the *Journal of Forensic Economics,* "Worklife Expectancies of Railroad Workers," James E. Ciecka and Gary R. Skoog have done the hard job of peer reviewing Charles Sherfey's tables based on the 19th Actuarial Valuation (December 31, 1992).

3. The primary difference between Sherfey's tables for the American Association of Railroads and the analysis prepared by Skoog and Ciecka lies in the fact that Skoog and Ciecka have developed an increment-decrement model. The Skoog-Ciecka tables allow transitions between railroad employment and non-railroad employment in the period prior to final railroad retirement, but not after that point. It should also be noted that railroad retirement pensions have complicated rules relating to how much workers can earn in transitional non-railroad employment without "breaking the connection" they have with railroads, but some of such employment is captured in the Skoog and Ciecka paper. Railroad Retirement Board pension rules and even railroad wages involve extremely complicated rules that do not exist in other industries. For example, seniority rules allow workers to "bid" for specific "jobs" which have different pay rates based on union contracts. Since lower paying "jobs" may be more pleasant or involve less time away from home, higher seniority workers may have lower earnings than lower seniority workers, a fact which should be born in mind by forensic economists doing FELA loss calculations.

References:

Bureau of Labor Statistics. 1986. *Worklife Estimates: Effects of Race and Education*, Bulletin 2254, February 1986.

Calfee, John E. and Paul H. Rubin. 1992. "Some Implications of Damage Payments for Non-Pecuniary Losses." *Journal of Legal Studies*. 21(2): 371-411, (1992).

Funderburk, Dale. (1988). "An Analysis of Railroad Worklife Tables." *Journal of Forensic Economics*. 2(1): 63-72.

Ireland, Thomas R. and James D. Rodgers. (1993). "Hedonic Damages in Wrongful Death/Survival Actions: Equitable Compensation or Optimal Life Protection." *Journal of Legal Economics*. 3(3): 43-56.

Railroad Retirement Board. (1983, 1989, 1992). *16th, 18th, 19th and 20th Eighteenth Actuarial Valuation of the Assets and Liabilities Under the Railroad Retirement Acts as of December 31, 1983, 1989, 1992, 1995: with Technical Supplement.* Chicago, Illinois.

Sherfey, Charles J. (1985, 1991, 1995) Railroad Worklife Expectancy Tables, produced for the American Railroad Association.

Skoog, Gary R. and James E. Ciecka. 1998. "Worklife Expectancies of Railroad Workers." Manuscript as of February 3, 1998.

Transportation Research Board, National Research Council. 1994. *Special Report 241: Compensating Injured Railroad Workers under the Federal Employers' Liability Act.* Washington, D.C.

Cases

Daubert v. Merrell Dow Pharmaceuticals. 113 S.Ct. 2786 (1993).