LAW AND ECONOMICS SEMINAR **Professor Polinsky**
Autumn Quarter 2015

October 15, 2015
4:15 - 5:45 pm
Stanford Law School
Room 320D

"Is Race- and Sex-Based Targeting Efficient? A Closer Look at Tort Law's Discriminatory Damage Awards"

by

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Note: It is expected that you will have reviewed the speaker's paper before the Seminar. This paper is longer than usual and it is not necessary to read it in its entirety. The author recommends the following sections: I, III, IV.C, and VI. These sections total approximately 30 pages.

Torts and Discrimination

October 2015

- I thank Omri Ben Shahar, John Donohue, Avichai Dorfman, Ward Farnsworth, Cary Franklin, Louis Kaplow, Alon Klement, Ariel Porat, Uriel Procaccia, Jane Stapleton, Steve Sugarman, Avraham Tabbach and Abe Wickelgren for their excellent comments. This paper also benefited from comments received at the University of Texas Drawing Board Forum, the Israeli Private Law Association Annual Meeting, the Sienna, Toronto, and Tel Aviv Universities Conference and by the NYC tort group. I thank Chad Barton, Kali Cohn, Siddharth Dilip Dadhich, Cissy Huang, and Sarah Valenzuela, for their excellent research assistance.

***Abstract**: Current tort law provides incentives to target individuals and communities based on race and gender. Under traditional law and economics analysis this practice is deemed efficient—a fact which law and economics scholars would stamp with analytical approval, but are likely embarrassed to admit. Surprisingly, the basis for this targeting is the seemingly neutral use of race- and gender-based statistical tables (wages, life expectancy and worklife expectancy) which, when used in tort damage calculations, result in a large disparity between damages awarded to whites versus blacks, and men versus women. First, this paper provides a full account of courts' existing discriminatory practices, identifying both theoretical and actual examples of race and gender targeting. It then challenges the conventional wisdom that the use of race- and gender-based tables are justified on efficiency grounds, pointing out fatal flaws inherent in the tables, in how the tables are used in courts to calculate damages for individuals, and in the incentives they create. Under the status-quo, tort law's remedial damage scheme both perpetuates existing racial and gender inequalities and creates ex-ante incentives for potential tortfeasers to engage in future discriminatory harm (discriminatory targeting) towards women and minorities. The paper then reveals that similar discriminatory practices surprisingly and ironically exist in federal law such as the ADA and even Title VII. After discussing the legal and theoretical background, statistical shortcomings, and efficiency concerns associated with the use of race- and gender-based statistical tables, this paper proposes a feasible, low cost, and logical solution to save American courts as well as the law and economics movement from this great embarrassment, and push towards a more efficient, and fair tort law remedial system.*

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I. INTRODUCTION

Imagine you are the manager of a school bus company that serves private schools. Your company serves only two types of schools: all-boys schools and all-girl schools, in all white and all black neighborhoods. Among other duties, your primary role is to find ways to cut costs associated with traffic accidents. You need to decide how to assign buses and drivers to the various schools your company serves.[1] The company has modern, safer buses as well as older, less safe buses. It employs very good, experienced drivers as well as not-so-good, inexperienced drivers.

You ask your team to find the most efficient way to allocate buses and drivers. You want to cut accidents costs by half. After a week, the team comes back with an effective solution. Their idea is simple: send the company's better drivers and safer buses to the boys' schools in the white neighborhoods and the company's worse drivers and riskiest buses to the girls' schools in the black neighborhoods. In the aggregate, tort liability costs will be higher for accidents that involve students from the all-boys schools than for accidents that involve students from the all-girls schools. Accidents involving white students will result in greater tort liability than accidents involving black students.

By following your team's advice, even if the accident rate stays the same, you can reduce the damages paid by your company and cut significant costs. As a manager, this is your chance to shine, but you feel uncomfortable "targeting" blacks or women in this way. You call the legal department and they inform you that not only is targeting perfectly acceptable, you may breach your fiduciary duty to the company if you do not target. To ease your concerns, they explain an interesting discrepancy in the structure of tort law: courts apply the same standard of care for your drivers regardless of a victim's race or gender, however—as your team has pointed out—race and the gender play a crucial role in the calculation of damages. The purpose of Tort law's compensation scheme, the legal department explains, is to restore victims, as much as possible, to their pre-accident status. Since blacks and women in the U.S. earn less than whites and men, respectively, the damages black women receive for future losses caused by bodily injury or wrongful death are less than the damages their white male counterparts would receive. The disadvantage blacks and women suffer in the U.S in terms of their job market prospects[2], are reflected in tort damages they receive.

The conclusion is unavoidable: it is cheaper for school bus companies to have accidents involving black girls than accidents involving white boys. To the extent this is unfair, it is not

[1] In this hypothetical, neither the school bus company nor the schools would receive public funds.
[2] Life span and work life expectancy also factor into damage calculations and contribute to inequality within tort law damage calculations. These factors will be discussed in detail below.

your company's problem to solve. Tort law is private law; it seeks to settle disputes between individuals, not between individuals and society or society and itself. On a policy level, tort law can mean many things. For some theorists, tort law is about corrective justice between the doer and the sufferer. For others, it is about minimizing social costs of accidents. For most, what tort law is not about is solving the problems of distributive justice or discrimination in society as a whole. So, armed with this knowledge, what would you, as the manager, do?

Let us look deeper into how tort law calculates damages. In the dark past, judges made "intuitive" judgments about damage awards, which allowed "race and racism to have tremendous influence in ways that are nearly impossible to prove."[3] Today, the damage calculation process is more methodical, perhaps even "scientific". Yet, race and gender still have tremendous influence on monetary remedies. Here is why: the plaintiff in a bodily injury and wrongful death cases is usually eligible— upon proving the defendant's liability—for economic and non-economic damages attributable to past and future harm. Economic damages are comprised of past and future losses attributable to medical costs and loss of income. Courts use three major types of statistical tables to form the basis of these calculations. *Mortality tables* are used to determine statistical life expectancy, which is an important factor in determining the life span multiplier in future non-economic damages and future medical costs.[4] *Worklife expectancy tables* are used to determine statistical worklife expectancy (the number of years remaining before the victim would normally leave the work force), which is an important factor in determining the remaining worklife multiplier in damages for future loss of earning capacity. In some cases—especially those in which plaintiffs do not have an established earnings record—courts also use *average wage tables* as the annual income multiplier in future loss of earning capacity damages.

Problematically, mortality and worklife expectancy tables often delineate on racial lines and all three types of tables delineate on gender lines. Traditionally, courts accept life expectancy, work life expectancy, and average income values particularized to the plaintiff's gender and, where

[3] Jennifer B. Wriggins, *Damages in Tort Litigation: Thoughts on Race and Remedies, 1865–2007*, 27 REV. LITIG. 37, 56 (2007) (discussing *The Saginaw and The Hamilton*,139 F. 906, 910 (S.D.N.Y. 1905)). In *The Saginaw and The Hamilton*, the court evaluated damage awards for two "white" decedents and six "colored" decedents, who died when two ships—the Saginaw and the Hamilton—crashed off of the coast of Delaware. 139 F. at 910, 914-16. After discussing the categorically shorter life expectancy of "colored" persons as compared to "white" persons, the judge embarked on individualized damages assessments for each of the decedents. *Id.* Ultimately, he chose to lower the awards of the white decedents for reasons directly related to the effects of old age and physical impairment on earning capacity, while he chose to lower the awards of the black decedents for reasons related to the extent of their families' reliance on their incomes. *Id.*

[4] The Restatement (Second) addresses the use of mortality tables and other evidence (possibly other statistical tables) in calculating damages for "harm to the person" in the comment discussing *the determination of length of life* by stating, "[i]n the case of permanent injuries or injuries causing death, it is necessary, in order to ascertain the damages, to determine the expectancy of the injured person's life at the time of the tort. For this purpose it is permissible to use mortality tables and other evidence as to the average expectancy of a *large number of persons*." RESTATEMENT (SECOND) OF TORTS § 924 (emphasis added). This language could be interpreted as permitting the use of mortality tables based on race and gender since mortality tables that determine the average life expectancy of individuals of a certain race and gender are essentially tables that determine the average life expectancy of a "large number of persons."

available, race. It is therefore perhaps unsurprising that Edie Greene and Brian H. Bornstein's 2003 review of the available and relevant empirical data suggest that juries reproduce the economic inequalities associated with race and gender in tort damage awards.[5] An earlier study conducted by Rand Corporation in 1985 concerning 9,000 civil jury trials in Cook county between 1959 and 1979 found that blacks receive smaller awards, about 3/4 of an equivalent white.[6] More data is available on the effect of plaintiff's gender; this data suggests men fair better than women in courts of law.[7] These differences are commonly attributed to judges' and jurors' racist perceptions, but rarely, if ever, to the core "neutral" practice of awarding damages by using government provided statistical tables.[8]

The statistical tables are seen as technical and objective tools to manifest fundamental tort law concepts: that the defendant "takes the victim as he finds her," or that the goal of the damage award is to "make the plaintiff whole," and to "put the plaintiff back in the position she was in before the negligent act." Is it therefore not part of tort law structure—or even logic—that a

[5] Edie Greene and Brian H. Bornstein, DETERMINING DAMAGES: THE PSYCHOLOGY OF JURY AWARDS, 54-58 (2003).
[6] Audrey Chin & Mark A. Peterson, DEEP POCKETS, EMPTY POCKETS: WHO WINS IN COOK COUNTY JURY TRIALS (1985), at page xiii. However, the data on the effect of a plaintiff's race on jury awards is extremely limited and, upon a closer look, suggests mixed results. *See id.* at 54-55. The findings from one simulation study on this topic were mixed, with college students awarding higher damages to the white plaintiff and jury-eligible adults awarding higher damages to the black plaintiff in a simulated civil rape case. *Id.* at 54-55. The authors did not find any significant empirical support for possible reasons as to the difference in damage awards by plaintiff's race.
[7] *See id.* at 55-58. Archival datasets from the Jury Verdict Research Corporation and the Washington State Task Force on Economic Consequences of Gender in Civil Litigation were reported with more granularity and showed male plaintiffs receiving higher damage awards than female plaintiffs. *See* Greene and Bornstein at 55-56. According to Jury Verdict Research Corporation data, men received 6% above average and women received 2% below average damages for the particular injury type, medical costs, and lost wages sustained. *Id.* at 55. This data was reported in 1971 and collected from 2,795 females and 3,976 males who received jury damage awards in the 1960s. Within the same data, Greene and Bornstein found that husbands received more damages for their wives' injuries than wives received for their husbands' injuries. *Id.* at 55. The other archival dataset is made of jury awards in wrongful-death cases and shows greater mean and median awards for male decedents over female decedents, as well as a greater range of awards for the male decedents. *See id.* at 55-56. This "interesting comparison" was "somewhat surprising" to the authors insofar as the disparity between damages awards for female and male plaintiffs have been explained by the fact that women historically have had lower paying jobs, less education, and subordinate family roles, and yet, awards for loss of spousal support do not reflect an understanding among juries that wives of injured husbands may suffer more significant financial losses than husbands of injured wives. *Id.* In addition to archival data, Greene and Bornstein reviewed the results of experimental studies on gender bias in damage award determinations. *See id.* at 56-58. Researchers simulated wrongful death jury trials, rotating between three causes of death and varying the gender of the decedent. Mock juries gave substantially higher compensatory damages to male decedents across all three cases because of a far greater tendency to consider many complicated socioeconomic factors for male decedents but not female decedents. *Id.* at 56-57. Mock jurors wrote that they considered factors such as "salary increases, the effects of inflation, and the investment potential of an award" for male plaintiffs but would "simply pick a number that seemed fair" for identically situated female plaintiffs. *Id.* A subsequent study to further and refine these results continued to show a clear gap between lost income damages for male and female decedents regardless of the socioeconomic status of their surviving spouse. *Id.* at 57-58. Greene and Bornstein suggest that these recorded award disparities may be primarily attributed to estimated lost income of male versus female decedents. *Id.* at 58.
[8] Frank McClellan, The Dark Side of Tort Reform: Searching for Racial Justice. 48 Rutgers Law Review (1996), at 774-6.

black woman should be made whole in accordance with her lower life span, fewer working years, and lower wage, as compared with a white man?

In this Article, I argue that tort law's remedial damage scheme perpetuates existing racial and gender inequalities, and worse, creates ex-ante incentives for potential tortfeasors that encourage future discriminatory harm. These incentives are what the school bus example attempts to demonstrate. I argue that using blended tables will not only improve the fairness of tort law (a claim other scholars and one insisting judge have been making for years at no avail), but also its efficiency. As it turns out, however, arguing that targeting the disadvantaged (an incentive the use of non-blended tables provides) is inefficient is an extremely difficult argument to make. Conventional wisdom under the economic analysis of law seems to be well entrenched in the position that targeting is socially desirable because it reduces social costs. In this paper I try to argue the opposite.

In Part II, I discuss current approaches to determining tort damages. Section A provides an in depth exploration of how courts use mortality tables, worklife tables, and wage tables in calculating damages. It then shows that, despite the 20th century historical tradition of using these tables— a common law discriminatory practice—the 21st century brought with it some weak winds of change, and now some courts are willing to apply blended tables. Section B shows that states have enacted statutes, and supported pattern jury instructions, that express preference for particular mortality or worklife expectancy tables when calculating damage awards. Although some jurisdictions strive to neutralize their damage awards by relying on race and gender *blended* tables, most tables supported by state statute or pattern jury instructions delineate on race or gender lines. Section C explores the academic response to the issue, or lack thereof besides few dedicated and persistent feminist scholars. Part C also shows that the next generation of lawyers and scholars has been conditioned to prefer the principle of *restitutio ad integrum* to the principle of equality. Reviewing many Torts and Remedies casebook notes on the discriminatory effects of race-and-gender-based statistical tables, it becomes apparent that very few casebook authors directly address the potential unconstitutionality, inaccuracy or the perverse incentives that may be created by these table's use in future damages calculations.

Part III first establishes that the various theories of tort law (i.e., corrective justice, distributive justice, and efficiency) have contributed to a misunderstanding of proper damages calculation. It then shows how these theories can instead be harnessed to mobilize change in the current practice. In short, distributive justice theories of tort law provide the easiest avenue for change. This is because those who view tort law from various (simultaneous) theoretical perspectives, including a distributive justice perspective (primarily pluralist legal systems and legal scholars), are more amenable to the idea that tort law cannot be part of a discriminatory legal system. Subscribers to this theory view a change that remedies discriminatory practices in the calculation

of tort damages as necessary. However, most scholars and courts in the U.S are not pluralist, but rather monists, subscribing to one theoretical framework, usually corrective justice or efficiency.

Indeed, corrective justice theorists, usually monists, are most likely to resist the proposed changes to tort law calculation. These theorists view tort law as a means of restoring the equality that existed between the tortfeasor and the victim prior to the accident. However, the scope of such restoration is limited to eliminating any inequality resulting from the tortfeasor's wrongdoing itself. It ignores pre-existing inequality inflicted on the tortfeasor's victim by society or its implications on the case outcome. In short, corrective justice theory does not concern itself with distributive justice or problems of discrimination in society. Accordingly, subscribers to corrective justice believe tort law should aspire to award the victim damages that restore her to the position she would most likely have been in, but for the accident. This begs the question: can corrective justice theorists abandon non-blended statistical tables, which supposedly provide increased precision in damages calculation? I argue that corrective justice (and its offspring: civil recourse theory) can reasonably be understood to require restoration of a victim's pre-accident *potential*, as a human being, and not to the position previous generations placed her in by discriminating against her ancestors. Accordingly, damages for lost income should really be understood—as many courts recognize—as damages for lost income *capacity*. The income capacity of a black girl and a white boy should be viewed, from a normative perspective, as identical. Therefore non-blended statistical tables, which capture outcomes of previous generations' discriminatory practices, are not indicative of harm suffered and should not impact damage awards.

Lastly, and perhaps most importantly, Part III argues that law-and-economics scholars should also support blended tables. This may seem surprising; one might expect law-and-economics scholars to support using more accurate information—especially when it is free, as statistical tables are—as such use is thought to be more efficient. Law and economics scholars are neither deterred from the targeting incentives tort law creates. To the contrary, they embrace them. For them, it makes total economic sense that accidents create as little economic harm as possible. Moreover, like corrective justice theorists, law and economics scholars object to fixing society-wide problems of discrimination via tort law, instead preferring that solutions be pursued via broader legislative schemes such as the tax and transfer system.[9]

And yet, there are three reasons law and economics scholars should support the abandoning of race- and gender-based tables, even though they provide free information.

First, as Part III(A) shows, the data in these tables is inaccurate: it uses (i) old, outdated data; (ii) it captures a snapshot in time which ignored trends of convergence between the genders' and the

[9] Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 677 (1994)

races' relevant data; and (iii) because even if these tables were based on accurate data for society at large, they would still be inaccurate in predicting any specific plaintiff's losses.

Second, as Part III(B) shows the use of these tables is inefficient for an entirely different and much more important reason. As has been well understood—at least since Professor Louis Kaplow's seminal 1994 paper—on efficiency grounds, ex-post accuracy in adjudication is often unnecessary.[10] Ex-post accuracy can be efficient if it helps the potential tortfeasor better calculate their ex-ante behavior and minimize cost. But in the case of non-blended statistical tables, ex-post accuracy imposes a new cost on society. This cost results from the potential tortfeasors' inherent incentive to acquire information about the race and gender of potential victims so that they can direct their riskiest, most accident-prone activities to affect demographics which represent the lowest tort liability. As non-blended tables indicate that the value of blacks and females in the tort system is lower than that of whites and males, these tortfeasors' end up "targeting" blacks and females. I argue that law and economics scholars should not view this perverse incentive as an efficient outcome. Targeting women and blacks does not minimize social costs—it only reduces tortfeasors' *private* costs of liability and shifts these costs to the disadvantaged, further reducing total welfare in society.

Lastly, Part III(C) shows that even though they might generally prefer to fix discrimination outside of private law, law and economics scholars should support using blended tables because not only do blended tables serve the societal goal of achieving greater equality, in this case, they actually do not decrease the overall efficiency of the tort system and may, potentially, even increase its efficiency. Surprisingly, of the many arguments for excommunication of non-blended tables from the tort-system's damages calculation, no one—to my knowledge—has attempted to demonstrate that the problem posed by gender- and race-based tables is not the classic tradeoff between equality and efficiency, but rather that non-blended tables are a detriment to both.

Part IV reveals that, surprisingly, courts use race- and gender-based tables even when awarding damages for violations of *federal laws*, such as the American With Disabilities Act and the National Childhood Vaccine Injury Act. The biggest surprise, or disappointment, is that courts use race- and gender-based tables when awarding damages for violations of Title VII. There, the very use of these tables is jarring in light of the federal statute's attempt to reduce discrimination based on race and sex.

Part V presents the natural policy response to the current practice. It proposes the adoption of one blended worklife table, one blended mortality table, and one blended wage table for use in damage calculations.

[10] Louis Kaplow, *The Value of Accuracy in Adjudication: An Economic Analysis*, 23 JLS 307-401 (1994).

Apart from the dedicated work primarily of Professors Martha Chamallas & Jennifer B. Wriggins, academia has largely ignored this problem. Apart from Judge Jack Weinstein, no court has vigorously struck down non-blended tables. [11] Perhaps an adequate efficiency argument had yet to be presented, the inaccuracy of the tables had yet to be fully revealed, the issue of the potential unconstitutionality of non-blended tables had yet to be presented in a convincing manner, or perhaps no one wanted to listen to the efforts that have been made. I posit that this problem can no longer be ignored.

II. CURRENT APPROACHES FOR DETERMINING TORT DAMAGES

Before one can understand the perverse incentives tort law creates, one needs to understand the way tort law, as applied in the U.S, deals with damage awards. In the past, courts routinely accepted race- and gender-based tables without raising any concerns,[12] and they continue to do so today.[13] This section discusses current approaches for determining tort damages. Section A reviews approaches explicitly or implicitly approved by courts. Section B focuses on the debate among scholars who recommend change to, or alternatively defend the current system. Section C reviews approaches adopted within the academic community. First, Section C focuses on law review articles written by scholars addressing the topic. Next, the Section explores the approach taken by the authors of tort-law casebooks which address, or fail to address discrimination in damages awards.

A. COURTS

There is nothing new about the use of life expectancy estimates in expert testimony on tort damages, a practice believed to trace back at least 100 years. Today, plaintiffs seeking damages

[11] See details below.

[12] *See* Frankel v. United States, 321 F.Supp. 1331, 1337-8 (E.D.Pa.1970) (reducing lost income award on the assumption female plaintiff would marry, bear children, and leave interrupt her career); *aff'd sub nom* Frankel v. Heym, 466 F.2d 1226 (3rd Cir.1972); Gilborges v. Wallace, 153 N.J.Super. 121, 379 A.2d 269 (1977) (implicitly endorsing sex-based tables); *Morrison v. State*, 516 P.2d 402 (Alaska 1973) (endorsing data for white Alaskan females); Johnson v. Misericordia Community Hospital, 97 Wis.2d 521, 294 N.W.2d 501, 527 (App.1980) (affirming race-based statistics for lost income calculation); Powell v. Parker, 62 N.C.App. 465, 303 S.E.2d 225, 228 (1983) (affirming race-based statistics for lost income calculation); Zuchowicz v. United States, CIV2-91-CV-1033(WWE), 1996 WL 776585 (D. Conn. Nov. 25, 1996) *aff'd*, 140 F.3d 381 (2d Cir. 1998) (accepting the average worklife expectancy for thirty-one year old ***white female*** as the appropriate base for calculating lost earning capacity)..

[13] *See, e.g.*, Rhoades v. Walsh, CIV. 08-368-P-H 2009 WL 2600094, n.24 (D. Me. Aug. 19, 2009) (using the Bureau of Labor Statistics worklife expectancy for a twenty-six year old ***white male*** currently active in the workforce as the appropriate base for calculating future earnings losses); Smith v. United States, 08-2375-JWL, 2009 WL 5126623 (D. Kan. Dec. 18, 2009) (accepting the average life expectancy for a thirty year old ***black female*** as the appropriate base for calculating future medical expenses).

for future harm and expense are typically required to present expert testimony that statistically demonstrates the harm they will suffer over their lifetime.[14] Generally, forensic economists are the damage calculation experts called on to "place dollar values on the harms that have occurred."[15] Traditionally, these statistical calculations have infused race and gender bias into damage calculations through three major statistical tables: life expectancy, worklife expectancy, and average national wage. I discuss each in turn below.

1. Life Expectancy

Life expectancy is a major component in calculating a plaintiff's *future medical expenses and future pain and suffering.* To determine future medical expenses, courts typically instruct the jury to determine the total cost of future medical payments that the plaintiff must endure over the rest of his or her life. A similar exercise applies for future pain and suffering,[16] except the type of evidence presented to the jury regards the pain and suffering the plaintiff will endure after all economic costs have been reimbursed.

Proof of remaining life expectancy usually begins with using a mortality table to determine the total life expectancy of an individual who has reached the plaintiff's age. The plaintiff's remaining life expectancy is the margin between their current age and that expectancy. Although tables do not provide conclusive proof of life expectancy, and the jury is encouraged to adjust the figure based on evidence of the plaintiff's health and habits, the tables often dictate the plaintiff's life expectancy. Generally, courts prefer to receive the best and most reliable table available. Accordingly, experts tend to present evidence based on the most recent version of the federal government's U.S. Life Table.[17] The U.S. Life Tables provide life expectancy statistics for the

[14] *See, e.g., Ruzzi v. Butler Petroleum Company*, 588 A.2d 1, 10-11 (Pa. 1991) (holding that presentation of expert testimony was appropriate to assist the jury in calculating the plaintiff's lost earning capacity). For an example of how damage calculations usually are presented in court, *see, e.g., Moody v. Blanchard Pl. Apartments*, 793 So.2d 281, 300-01 (Ct. App. La. 2001) (discussing evidence produced by the forensic economist experts of both the plaintiff and defendant to calculate damages for future medical expenses over the plaintiff's remaining life and loss of earning capacity over the plaintiff's pre-injury worklife).

[15] Ireland, Thomas R. (2006), "The Role of the Forensic Economist in Damage Assessment for Personal Injuries," in Measuring Loss in Catastrophic Injury Cases, Kevin S. Marshall and Thomas R. Ireland (eds.), Lawyers and Judges Publishing Company.

[16] *See, e.g., Earl v. Bouchard Transp. Co., Inc.*, 735 F.Supp. 1167, 1177 (E.D. N.Y. 1990) (awarding pain and suffering damages for the plaintiff's remaining life expectancy of 14 years).

[17] 4-36 DAMAGES IN TORT ACTIONS § 36.02; *see also* T.W. ANDERSON, LIFE EXPECTANCY IN COURT 21 (2002) (using U.S. Life Tables as foundation for life expectancy calculation); Richard B. Singer, *How to Prepare a Life Expectancy Report for an Attorney in a Tort Case*, 37 J. INS. MED. 42, 43 (2005) (using U.S. Life Tables as a foundation for life expectancy calculation). There are other life expectancy tables available for use, including the American Experience Table, the Carlisle Table, the Wigglesworth Table, the Northampton Table, the Commissioners Standard Ordinary Mortality Table, and tables contained in insurance manuals, but these are older tables (some based in pre-20th Century data) that are less preferred. 4-36 DAMAGES IN TORT ACTIONS § 36.02.

population as a whole, for each gender, for certain racial categories (white, black, Hispanic, Non-Hispanic white, and Non-Hispanic black), as well as for genders within those racial categories.[18]

Historically, experts provide life expectancy statistics specific to the gender and race of the plaintiff. Practically, this means that a black boy and a white boy, both identically injured at age one, would receive significantly disparate awards for future medical expenses. A simple, and even simplistic, back of the envelope calculation is illuminating. Assume annual medical expenses for each boy is $2000. Using the most recent U.S. Life Tables, the black boy would receive a damage award that was $11,000 less than the white boy, simply because of his race.[19] Applying the same scenario to a white boy and white girl results in the male receiving $9,600 less than his sister, simply because of his gender.[20]

Often, when life expectancy is adjusted to account for specific injuries or health conditions further race- and gender-based bias is imposed on the calculation. Many forensic economists apply "relative mortality ratios"[21] to reflect life expectancy reductions due to disability or health conditions such as paraplegia or smoking status. Often, these relative mortality ratios are particularized to race and gender.[22] This can further compound race- and gender-based disparities in damage award calculations.

Traditionally, courts have accepted the use of race- and gender-based life expectancy statistics in the calculation of future medical expense and pain and suffering damages without question. Many continue to do so today.[23]

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[18] *See, e.g.*, Elizabeth Arias, *U.S. Life Tables 2008*, 61 NATIONAL VITAL STATISTICS REPORTS 1, 3 (2012).

[19] According to the 2008 U.S. Life Tables, the statistical life expectancy for a one-year-old white male is 76.1 years. The statistical life expectancy for a one-year-old black male is 70.6 years. To calculate the difference above, I multiplied the life expectancy by the assumed $2,000 annual medical expenses for both individuals. The difference was $11,000.

[20] According to the 2008 U.S. Life Tables, the statistical life expectancy for a one-year-old white male is 76.1 years. The statistical life expectancy for a one-year-old white female is 80.9 years. To calculate the difference above, I multiplied the life expectancy by the assumed $2,000 annual medical expenses for both individuals. The difference was $9,600.

[21] A Relative Mortality Ratio represents the relative amount a person is likely to die in any year, as compared to the general population (e.g. an RMR of 2 means that the person is twice as likely to die in any year, an RMR of 3 means that the person is three times as likely to die in any year, and so on). Robert J. Thornton & Frank Slesnick, *New Estimates of Life Expectancies for Persons with Medical Risks*, 10 J. FORENSIC ECON. 285, 285 (1997), *available at* http://frankslesnick.com/doc/newestimates.pdf.

[22] *See, e.g.*, *id.*

[23] *See, e.g.*, Smith v. United States, *supra* n. 13; Smith v. U.S. Dep't of Veterans Affairs, 865 F.Supp. 433, 441 (N.D. Ohio 1994) (using the life expectancy for an average *man* of the plaintiff's age and *race*, discounted to account for his schizophrenia, to calculate the plaintiff's future medical expenses); *Diebold v. Gulf States Optical Lab., Inc.*, CIV.A. 96-3579, 1997 WL 537689 (E.D. La. Aug. 25, 1997) (awarding the plaintiff, who suffered a back injury during a car accident, $3,000 for future medical expenses—calculated based on $40.00/month chiropractic treatment over his remaining life, which for a ***white male*** of his age was 9.6 years); *Adkins v. Asbestos Corp., Ltd.*, 18 F.3d 1349, 1350 (6th Cir. 1994) (upholding the trial court's use of a standard mortality table particularized to the plaintiff's ***race*** and ***gender*** in calculating the life expectancy for future pain and suffering damages).

2. Worklife Expectancy

Worklife expectancy is a major factor in the calculation of a plaintiff's *loss of future earning capacity*. To determine loss of future earning capacity, courts typically instruct the jury to determine the plaintiff's future earnings for the duration of his worklife expectancy. Like life expectancy in future medical expense calculations, worklife expectancy becomes a determinative factor in the size of the ultimate damage award. Whereas courts in other countries use their country's mandatory retirement age as a relevant benchmark, there is not mandatory retirement age in the U.S, so its courts embrace the results of labor market analysis to predict future patterns of earnings and employment.

Like life expectancy tables, worklife expectancy tables provide the starting point for determinations of loss of future earning capacity[24] and these tables may be adjusted according to the plaintiff's circumstances. Various tables are available.[25] Many experts rely on worklife expectancy tables published in economics journals, such as the Skoog, Ciecka, and Krueger tables,[26] as well as the tables set forth by the Bureau of Labor Statistics (BLS).[27] The Skoog, Ciecka, and Krueger tables provide worklife expectancies for each gender at various levels of educational attainment.[28] The BLS tables provide worklife expectancies for each gender, for

[24] Like in life expectancy calculations, either side can present evidence that adjusts the statistical worklife expectancy up or down, depending upon characteristics particularized to that individual. *See, e.g.*, *Earl*, 735 F.Supp. at 1176 (reducing the plaintiff's worklife expectancy down from the statistical worklife expectancy because the plaintiff testified as to his pre-accident intended retiring date, which was several years earlier than his statistical worklife expectancy). Apart from worklife expectancy, economists take into account additional factors when calculating lost earning capacity, including salary growth rate, personal consumption, nonmarket loss, adjustment for taxes, and discount rate for inflation. T.L. "Smith" Boykin III, *The Economist's New Clothes*, 53 DRI FOR DEF. 36 (2011); *see also O'Shea v. Riverway Towing Co.*, 677 F.2d 1194, 1199-1200 (7th Cir. 1982) (discussing two valid ways of calculating the discount rate for inflation in lost earning capacity calculations); *Petition of United States Steel Corp.*, 436 F.2d 1256, 1273-75 (6th Cir. 1970) (finding that the appropriate salary growth rate for lost wages should be based on salary growth provisions in the decedents' collective bargaining agreements); *United States v. English*, 521 F.2d 63, 72 (holding that, under Federal and California law, lost wage calculations should deduct for a "decedent's personal consumption, expenditures, and taxes."); *Maranto v. Goodyear Tire & Rubber Co.*, 661 So.2d 503, 507-08 (La. Ct. App. 1995) (awarding the plaintiff compensation for the value of the lost household services (also known as nonmarket losses) that the plaintiff would have performed for her family, but for her injury).

[25] Alternative calculations include other worklife expectancy tables, *see* Thomas R. Ireland, *Why Markov Process Worklife Expectancy Tables are Usually Superior to the LPE Method*, 16 J. Legal Econ. 95, 101 (2010), and worklife probability tables ("LPE" method), *see* VOCATIONAL ECONOMICS, INC., *Calculation of Worklife Expectancy Using the Life, Participation, Employment Method* (2006), *available at* http://www.vocecon.com/resources/ftp/data/lpecalc.pdf.

[26] Frank L. Slesnick, Michael R. Luthy, and Michael L. Brookshire, *A 2012 Survey of Forensic Economists: Their Methods, Estimates, and Perspectives*, 24 J. FORENSIC ECONOMICS 67, 86 (2013).

[27] 10 DAMAGES IN TORT ACTIONS § 10.03 (2012); *see also* HON. D. DUFF MCKEE, 29 AM. JUR. PROOF OF FACTS 3D 259 (2013) (using Department of Labor statistics as the basis for average worklife expectancy in model expert testimony regarding loss of earning capacity).

[28] Gary R. Skoog, James E. Ciecka & Kurt V. Krueger, *The Markov Process Model of Labor Force Activity: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Errors*, 22 J. FORENSIC ECON. 165 (2011); Kurt V. Krueger, Gary R. Skoog & James E. Ciecka, *Worklife in a Markov Model with Full-time and Part-time Activity*, 19 J. FORENSIC ECON. 61 (2006); Edward M. Foster & Gary R. Skoog, *The Markov*

certain racial categories (white and "black and other"), and for genders within those racial categories.[29] Experts sometimes employ worklife expectancy tables particularized to specific industries[30] or tables particularized to a specific disability.[31]

In sum, experts usually provide worklife expectancy statistics specific to the particular race and gender of the plaintiff.[32] As before, juries can make adjustments to base-salary estimations that provide an additional opportunity for race and gender-based damage award gaps to arise.[33] As

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Assumption for Worklife Expectancy, 17 J. FORENSIC ECON. 167 (2004); Gary R. Skoog & James Ciecka, *The Markov (Increment-Decrement) Model of Labor Force Activity: Extended Tables of Central Tendency, Variation, and Probability Intervals*, 11-SUM J. LEGAL ECON. 23 (2001).

[29] U.S. DEPT. OF LABOR BUREAU OF LABOR STATISTICS, BULLETIN 2254: WORKLIFE ESTIMATES: EFFECTS OF RACE AND EDUCATION (1986), *available at* http://www.bls.gov/cps/cpsb2254.pdf.

[30] For example, Skoog and Ciecka have produced work life tables for railroad workers and for major league baseball players. [30] Gary R. Skoog & James E. Ciecka, *An Autoregressive Model of Order Two for Worklife Expectancies and Other Labor Force Characteristics with an Application to Major League Baseball Hitters*, 18 J. LEGAL ECON. 47 (2012); Gary R. Skoog & James E. Ciecka, *Worklife Expectancy via Competing Risks/Multiple Decrement Theory with an Application to Railroad Workers*, 19 J. FORENSIC ECON. 243 (2006). Neither of these tables distinguishes their findings on race or gender lines. However, the admissibility of the railroad workers table is questionable, having been criticized by the Eastern District of Wisconsin as unreliable in an unpublished 2012 decision. Evaluating the reliability of the railroad worker tables, the court noted that the methodology underlying the tables "has never been tested or peer-reviewed and similar tables have been held unreliable in the field for several reasons," and that a prior case had invalidated a forensic economist's testimony on worklife expectancy because it "did not include any evidence comparing worklife within the plaintiff's particular field with the national average or worklife of any other occupation." *Larson v. Wisconsin Cent. Ltd*., 2012 WL 359665, *5 (E.D. Wis. Feb. 2, 2012) (citing *Marcel v. Placid Oil Co.*, 11 F.3d 563, 567 (5th Cir. 1993)).

[31] *See, e.g.*, ANTHONY M. GAMBOA & DAVID S. GIBSON, GAMBOA GIBSON WORKLIFE TABLES: BY GENDER, LEVEL OF EDUCATIONAL ATTAINMENT, AND TYPE OF DISABILITY (2010). ~~The tables distinguish based on gender, level of educational attainment, and type of disability.~~ There is some disagreement among legal economists as to the reliability of these tables. Legal economist Thomas Ireland argues that the Gamboa-Gibson tables are unreliable and "without merit, arguing (1) the data underlying the tables comes from government sources that were not intended to collect information on the prevalence of permanent disabilities, (2) the LPE method is not effective when a disability variable is introduced, and (3) general disability status is not reflective of worklife expectancy particularized to a specific injury." Thomas Ireland, *Why the Gamboa-Gibson Disability Work-life Expectancy Tables Are Without Merit*, 15 J. LEGAL ECON. 105, 105-09 (2009).

[32] But see MICHAEL L. BOOKSHIRE & STAN V. SMITH, ECONOMIC/HEDONIC DAMAGES, 127 (1990) for an argument that experts should separately analyze a black male who demonstrates a record of continuous workforce participation and employment because the expert would be disserving him by adjusting his earning capacity to that provided by the table. However, Bookshire & Smith also argue that, generally, worklife adjustments should be categorized by race and sex because, although probabilities of worklife expectancy are lower for the average black person, as opposed to the average white person, the differential is not as great for black females

[33] After calculating the base annual income and multiplying it over the individual's work life expectancy, legal economists usually take additional factors into account, including the salary growth rate, personal consumption rate, nonmarket loss, taxes, and discount rate for inflation. T.L. "Smith" Boykin III, *The Economist's New Clothes*, 53 DRI FOR DEF. 36 (2011). Both the salary growth rate and the personal consumption rate can be particularized to race and gender. *Id.*; ELIZABETH M. KING & JAMES P. SMITH, COMPUTING ECONOMIC LOSS IN CASES OF WRONGFUL DEATH 36-40 (1988), *available at* http://www.rand.org/content/dam/rand/pubs/reports/2006/R3549.pdf. The salary growth rate adjusts the salary upward over the remaining duration of life to account for "economy-wide wage growth, sex-specific wage growth, and individual-specific wage growth." *Id.* This calculation can be particularized to gender and race. *Id.* The personal consumption rate adjusts the salary downward based on the amount of money that the plaintiff would have spent on personal living expenses. *Id.* Personal consumption rates can also be particularized to race and gender, and thus disparately impact the damage awards of plaintiffs of different races or

with race- and gender-based life expectancy, this results in seriously disparate damage awards for similarly situated plaintiffs. According to the most recent BLS statistics, a white boy and a black girl with the same projected educational levels who were identically injured at age 16, would receive monumentally different damage awards. Assuming each earned an averaged annual income of $25,000, another back of the envelope calculation reveals that the white male would receive $302,500 more in future loss of earning capacity than the black woman.[34]

3. Average National Wage

The third important factor which gives rise to race and gender discrimination in tort damages is the average national wage. This average can be important in future lost earning capacity calculations where plaintiffs lack an established earnings record. Courts multiply a plaintiff's established earnings record with her worklife expectancy to predict future loss of earning capacity. However, when the earnings record is not reflective of the individual's projected earnings—either because she is a child without an earnings record or a young adult whose current job does not reflect her ultimate career—some courts rely on the Bureau of Labor Statistic's annual wage tables.[35] For example, the Mississippi Supreme Court held that in wrongful death cases for children without established earnings records, the Department of Labor's average national wage is the appropriate starting point for calculating future lost earning capacity which can be adjusted up or down upon presentation of "credible evidence."[36] At their most general, these tables provide average national wage statistics for males and females. However, they also provide data by educational level and occupation.[37] Because "choosing a (lost) wage base" involves a consideration of expected future earnings, broad discretion is afforded to the forensic economist, but this decision must conform to a "common sense standard of reasonableness."[38]

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genders. *Id.*; U.S. Bureau of Labor Statistics, Consumer Expenditures in 2009 (2011), *available at* http://www.bls.gov/cex/csxann09.pdf.

[34] In practice, race and gender will inform forensic economists' projections of the plaintiff's educational attainment, resulting in even larger gaps. Furthermore, the size of the gap increases as expected annual income rises. Annual incomes larger than $25,000 result in significant increases in the total gap. This increased income exacerbated gap is likely to occur where, for example, the plaintiffs had already applied for college, even if they went to the same college, sat in all classes together, and received the same grades on all exams.

[35] *See, e.g.*, Greyhound Lines, Inc. v. Sutton, 765 So. 2d 1269, 1277 (Miss. 2000).

[36] *Greyhound*, 765 So. 2d at 1277 ("[T]here is a rebuttable presumption that the deceased child's income would have been the equivalent of the national average as set forth by the United States Department of Labor. . . . Either party may rebut the presumption by presenting relevant credible evidence to the finder of fact. Such evidence might include, but is certainly not limited to, testimony regarding the child's age, life expectancy, precocity, mental and physical health, intellectual development, and relevant family circumstances. This evidence will allow the litigants to tailor their proof to the aptitudes and talents of the individual's life being measured.").

[37] U.S. DEPT. OF LABOR BUREAU OF LABOR STATISTICS, HOUSEHOLD DATA: ANNUAL AVERAGES, *available at* http://www.bls.gov/cps/cpsaat39.pdf.

[38] Georg A. Barrett & Michael L. Brookshire, *Assessing Damages in personal Injury and Wrongful Death Litigation: The State of West Virginia*, 16(3), J. OF FOREN. ECON. 315-27 (2003).

Most courts prefer that projected average earnings be adjusted according to predictions particularized to the plaintiff about likely educational attainment, in light of the plaintiff's personal characteristics and familial background.[39] The opinion of such vocational experts are generally favored over that of medical doctors. These opinions provide adjustments to base average earnings on the basis of "diminished earnings levels, worklife probabilities, or area-earnings returns to education that may result from permanent injury."[40] Such projections reinforce the discriminatory effects the plaintiff's race or gender has on their access to education and opportunities, and essentially perpetuate that discrimination into the future.[41] Take for example a recent Mississippi case, where an expert testified that the average income for a high school graduate was $28,631 and for a junior college graduate was $36,021.[42] Assume a court is calculating future lost earning capacity for our white and black males from the previous example—even assuming both plaintiffs had the same worklife expectancy—if the court, based on familial patterns, uses the average national earnings for the junior college graduation for the white boy and the earnings for a high school graduate for the black male, the white plaintiff will receive $294,861 more in damages than the black plaintiff.

4. Shifting Trends

It is a puzzle how such a discriminatory practice has survived for so many years. In one case, the court noted that the expert involved in economic damage calculations testified that "no one had ever asked him to provide race and sex-neutral calculations in a wrongful death case," even though he had performed thousands of lost income analyses during his career.[43] Despite a long

[39] The individual plaintiff is usually considered according to his or her race and gender. *See, e.g., Vincent by Vincent v. Johnson*, 833 S.W.2d 859, 865 (Mo. 1992) (affirming the jury's use of *female* average wage in lost earning capacity calculation and noting "[t]his Court will not consider it error for a jury to refuse to minimize an award of lost minimum wages for an infant female on the assumption that the average wage for women in the future will still be only two-thirds of the average wage for men"); *Wheeler Tarpeh-Doe v. United States*, 771 F.Supp. 427, (D.D.C. 1991) (using the average wage for *black male* college graduates in calculating lost income for an eight-year old boy suffering from blindness and neurological damage resulting from medical negligence), *rev'd sub nom. Tarpeh-Doe v. United States*, 28 F.3d 120 (D.C. Cir. 1994) (reversing on grounds that the defendant was not liable in tort). *See, also., Musick v. Dorel Juvenile Grp., Inc.*, 818 F. Supp. 2d 960, 964 (W.D. Va. 2011); *Athridge v. Iglesias*, 950 F. Supp. 1187, 1193 (D.D.C. 1996) *aff'd sub nom. Athridge v. Iglasias*, 96-7261, 1997 WL 404854 (D.C. Cir. June 30, 1997).

[40] Barret & Brookshire, *supra* note 40.

[41] For a discussion on this issue in the international context, *see* the Israeli case *Migdal Ins. v. Rim Abu Hanna*, as discussed in Eliezer Rivlin, *Thoughts on Referral to Foreign Law, Global Chain-Novel, and Novelty*, 21 FLA. J. INT'L L. 1, 22 (2009) (commenting that "restoring the status quo under the heading of loss earning power means brining the injured person to a place destined for him in the future, not returning to the place where his forefathers (and foremothers) were.").

[42] *Sears, Roebuck & Co. v. Learmonth*, 95 So. 3d 633, 639 (Miss. 2012).

[43] United States v. Bedonie, 317 F. Supp. 2d 1285, 1315 (D. Utah 2004), *rev'd and remanded sub nom*. United States v. Serawop, 410 F.3d 656 (10th Cir. 2005). This expert's experience was echoed in conversations on the subject that I have had with practicing lawyers, and is also reflected in my own experience. The lawyers I spoke with—who

history of race- and gender-based damage calculations in both personal injury and *wrongful death* actions,[44] some courts in the U.S and other countries have begun finally to shift toward a race or gender neutral framework, although primarily with regard to future lost earning capacity awards and life expectancy.[45] For example, in *Wheeler Tarpeh-Doe*, the United States District Court for the District of Columbia required that the loss of future earnings of a *mixed-race* plaintiff be based on race and gender neutral calculations.[46] The court found that average black male earnings were not representative of the plaintiff's earning capacity, and, more broadly, that "it would be inappropriate to incorporate current discrimination resulting in wage differences between the sexes or races, or the potential for any future such discrimination into a calculation for damages resulting from lost wages."[47]

For the sake of context, recall that Plessy, despite being 7/8th white, was still kicked off of the train. *Plessy v. Ferguson* was decided in 1896. The 19th century ended; the 20th century ended. Is our only progress that mix-race children are now treated like whites? The good news is that a few courts have ignored gender and race even for non-mixed race, minority plaintiffs. The bad news is that only a few have.

For example, in *United States v. Bedonie*, the district court of Utah declined to apply race- and gender-based data in assessing damages for the loss future of income of two Native American victims.[48] The court concluded that blended, race and gender-neutral data should be used, unless the defendant could prove that the reduction based on race or gender was warranted.[49] On

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represent plaintiffs in tort suits—had no clue how experts sourced their statistics, and never thought about questions of race and gender discrimination in this context.

[44] Courts have been long disposed towards using non-blended life expectancy, worklife, and salary tables in wrongful death actions as well. *See e.g.*, *Watson v. S. Shore Nursing & Rehab. Ctr., LLC*, 2012 IL App (1st) 103730, ¶ 40, 965 N.E.2d 1200, 1209 (using a non-blended government table to measure the life expectancy of an African-American male); *Probst v. Wroten*, 433 So. 2d 734, 744 (La. Ct. App. 1982) (authorizing worklife expectancy tables based on gender over plaintiff's objection through the trial court's discretionary powers); *Johnson v. Misericordia Cmty. Hosp.*, 97 Wis. 2d 521, 573, 294 N.W.2d 501, 527 (Ct. App. 1980) *aff'd*, 99 Wis. 2d 708, 301 N.W.2d 156 (1981) (using yearly government salary tables based on the plaintiff's race).

[45] In Canada, courts have moved toward a gender-neutral conception of damage awards. *See, e.g.*, *Walker v. Ritchie*, [2003] O.J. 18 (O.S C.J. Jan. 3, 2003) (holding that use of gender neutral average income statistics was appropriate in calculating the plaintiff's future loss of income); *Shaw (Guardian ad litem of) v. Arnold* [1998] B.C. J. 2834 (B.C.S.C, Dec. 3, 1998) (calculating future loss of earnings for female plaintiff by averaging the damages for a man and a woman of the plaintiff's age). *See* also the Israeli case *Migdal Ins. v. Rim Abu Hanna*, as discussed in Eliezer Rivlin, *Thoughts on Referral to Foreign Law, Global Chain-Novel, and Novelty*, 21 FLA. J. INT'L L. 1, 22 (2009) (commenting that "restoring the status quo under the heading of loss earning power means brining the injured person to a place destined for him in the future, not returning to the place where his forefathers (and foremothers) were."). For examples of such practices in the U.S., *see McMillan v. City of New York*, 253 F.R.D. 247 (E.D.N.Y. 2008) and *Hernandez-Adams v. Kimpson*, Case 1:13-cv-05059-JBW-SMG, Document 88 (E.D.N.Y. July 30, 2015).

[46] *Wheeler Tarpeh-Doe*, 771 F.Supp. at 455 (1991).

[47] *Id.*

[48] US v. *Bedonie*, 317 F.Supp.2d at 1319 (2004). These are two consolidated case. One concerns a Native American teenage boy who died in a DUI car accident, and the other concerns a Native American baby girl who was killed by her father. The court needed to determine damages under the Mandatory Victims Restitution Act.

[49] *Id.*

appeal, the Tenth Circuit affirmed that reduced damage awards based on non-blended statistics were inappropriate under the circumstance of the case.[50] The district court "observ[ed] that '[a]s a matter of fairness, the court should exercise its discretion in favor of victims of violent crime and against the possible perpetuation of inappropriate stereotypes," and the Tenth Circuit ruled that it was within the district court's discretion to thus reject a race-based approach.[51]

While these courts declined to apply race and gender tables because they were "inappropriate" or "unwarranted," others have declined to use race- or gender-based statistics on the rationale that racial and gendered disparities reflected in the tables should have little effect in the long-term. For example, in *Reilly v. United States*, the Court rejected the expert's suggested reduction of a female plaintiff's loss of earning capacity by 40%, which was based on the Bureau of Labor Statistic's determination that a woman of her age would have less remaining years in the workforce than a man of her age.[52] The Court commented, "[a]s a factual matter, I seriously doubt the probative value of such a statistic with respect to twenty-first century women's employment patterns, particularly in light of current, ongoing changes in women's labor force participation rates."[53] Similarly, in *Drayton v. Jiffee Chemical Corp.*, the court declined to reduce a black, female plaintiff's future earnings on racial or gendered calculations because the court "recognize[d] the likelihood that these disadvantages will have considerably less impact in the future on the ability of a black female . . . to obtain gainful employment comparable to that available to white males."[54]

Interestingly, these courts did not make any constitutional arguments about using race and gender, but only argued that as a matter of actuarial science, using these tables is inappropriate. Neither did these courts attempt to reveal the perverse incentives such rules provide to potential tortfeasors.

Sadly, even the federal government often attempts to convince the court to apply gender- and race-based tables. For example, in *Bedonie* (the case involving Native American victims discussed earlier) the government argued that:

> "the economic data relied upon in [the expert's] first report accurately reflects economic reality and the role that race and gender play in earnings today. As much as we wish that the average earning potential of all groups could be equal, the data relied upon by economists in calculating lost earnings show that, on average, whites earn more than Native Americans and men have a longer

[50] *United States v. Serawop*, 505 F.3d 1112, 1126-27 (10th Cir. 2007). *See also Theodile v. Delmar Systems*, 2007 WL 2491808, *8 (W.D. La. 2007) (deferring to the jury's preference for the plaintiff's race-neutral work life expectancy tables over the defendant's work life expectancy tables).
[51] *Serawop*, 505 F.3d at 1126.
[52] *Reilly v. United States*, 665 F. Supp. 976, 997 (D. R.I. 1987).
[53] *Id.*
[54] *Drayton v. Jiffee Chemical Corp.*, 591 F.2d 352, 368 (6th Cir. 1978).

> expected work life than women. These are relevant facts in determining the victims' actual losses."[55]

The court in *Bedonie* rejected this attempt, as have only few other courts in similar cases.[56]

However, there is reason for hope that more U.S. courts will recognize the discrimination and injustice perpetuated by the use of non-blended statistical tables in the calculation of damages awards. Recently one court, and one judge in particular, has ruled this practice unconstitutional.[57] In *McMillan v. City of New York*, Judge Jack B. Weinstein held that evidence presented by the defense's expert, which sought to reduce the damage awards owed to an African American plaintiff, based on a lower life-expectancy of African American victims violated the equal protection and due process clauses of the U.S. Constitution and therefore could not be used in computing life expectancy and damages.[58] Further, the court cited research indicating that life expectancy disparities between ethnicities was reduced when controlled for socio-economic status.[59] In an even more recent case, *G.M.M. ex rel. Hernandez-Adams v. Kimpson*, Judge Weinstein ruled that it is unconstitutional "in a tort trial to premise projected societal and educational achievements on race or ethnicity to reduce tort damages."[60] Judge Weinstein expressly prohibited the defense's expert from presenting evidence that suggested that a Hispanic male was less likely to obtain a post-secondary degree based on his ethnicity on the basis that such testimony was "inappropriate as a matter of constitutional and federal law."[61] The judge argued that race-based statistics were factually inaccurate because race was a fictitious, changing, and unreliable social contract in appropriate in assessing damages in a negligence suit [62] Further, the judge suggested that even testimony seeking to reduce a plaintiff's damages award based on the achievements of family members was inappropriate, given such practice "reinforces historical discrimination."[63]

It remains to be seen whether other courts will take Judge Weinstein's lead.

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[55] *See* United States v. Bedonie, 317 F. Supp. 2d at 1316.
[56] Government's Position on Calculation of Future Lost Income Restitution at 8, *United States v. Serawop* (Apr. 12, 2004) (Dkt. No. 89-1) cited in *Bedonie* just before footnote 138. *See also* In *Caron v. United States*, 548 F.2d 366, 371 (1st Cir. 1976) (rejecting the government's attempt to reduce a loss of earnings award for a female infant suing the government for medical malpractice under the Federal Tort Claims Act, stating "we see no reason to distinguish between the sexes, as the Government indicates.").
[57] *See* McMillan v. City of New York, *253 F.R.D. 247 (E.D.N.Y. 2008).*
[58] *See id. acc'd Hernandez-Adams v. Kimpson*, Case 1:13-cv-05059-JBW-SMG, Document 88 *(E.D.N.Y. July 30, 2015)*
[59] *See* McMillan, 253 F.R.D. at 252.
[60] Kimpson, *supra* note 58, at *34–5.
[61] *Id.* at *11.
[62] Id. at *9, 19.
[63] *Id.* at *25. Courts cannot accept a principle in awarding damages "that reflect subtle but pervasive racism and classism." *Id.* at *42 (internal citations omitted).

B. STATES

Tort law is a state law and therefore can be reformed by state legislatures. Indeed, over the past few decades many states passed laws overriding the common law of torts; caps on damages being the classic example. Interestingly, almost every one of these caps was challenged in state court for violating various constitutional provisions, including equal protection and due process. Thus, one might expect states to enact statutes mandating blended or neutral mortality tables to mitigate similar concerns (I did). Indeed, some states have elected to adopt statutes or pattern jury instructions that express preference for certain mortality or worklife expectancy tables in damage awards. Surprisingly, however, most of the tables receiving such support delineate on race or gender lines.[64]

Four states have codified their own mortality tables.[65] Of these, Colorado and North Carolina have codified blended tables based only on age and do not delineate between races or genders. The other two—South Carolina and Virginia—codified race-neutral tables, but distinguish between genders. Separately, two states—Georgia and Rhode Island—passed statutes that guarantee admissibility of certain mortality and worklife expectancy tables for proof of life and worklife expectancy.[66] However, these tables are traditional tables often accepted by courts, with data separated by race and gender. Many more states have pattern jury instructions that express preference for certain life expectancy tables. Of the jury instructions I examined, eleven had relevant provisions. Ten provisions delineate along gender lines.[67] Six are race-neutral, leaving five who distinguish along racial lines.[68]

And yet, despite my efforts I could not find any attempt to strike down any of these statutes on the basis that they were unfair, inefficient or unconstitutional.

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[64] *See, e.g., Eakelbary*, Summit App. No. 9476 (Ohio Ct.App.1980) (sex-based instruction)(*citing Immel v. Richards*, 154 Ohio St. 52, 93 N.E.2d 474, 475 (1950) (listing "sex" as a factor)); *see also Franchell*, 73 A.D.2d 1, 424 N.Y.S.2d 959, 962 (1980) (same); *King v. Louisville & Nashville R. Co.*, No. 87-199-II, 1987 WL 26384 (Tenn.Ct.App. Dec.9, 1987) (citing *Crowe v. Provost*, 52 Tenn.App. 397, 374 S.W.2d 645 (1963) (same)).

[65] COLO. REV. STAT. ANN. § 13-25-103; N.C. GEN. STAT. ANN. § 8-46; S.C. CODE ANN. § 19-1-150; VA. CODE ANN. § 8.01-419.

[66] GA. CODE ANN. § 24-14-44; R.I. GEN. LAWS ANN. § 9-19-38.

[67] These states include Alaska, California, Kansas, Kentucky, Michigan, Minnesota, New York, North Dakota, Tennessee, and Washington. AL. CIVIL PATTERN JURY INST. 20.13; *3932: Life Expectancy*, JUDICIAL COUNCIL OF CALIFORNIA CIVIL JURY INSTRUCTIONS 773 (2012); PATTERN INST. KAN. CIVIL 171.45; *Life expectancy tables*, KENTUCKY WRONGFUL DEATH ACTIONS § 13:3 (2012-13 ed.); MODEL CIVIL JURY INST. – MICHIGAN; 4A MINN. PRAC., JURY INST. GUIDES—CIVIL APPENDIX (5th ed.); N.Y. PATTERN JURY INST.—CIVIL APPENDIX A (3d ed.); N.D. PATTERN JURY INST.—LIFE EXPECTANCY (PERSONAL INJURY); 8 TENN. PRAC. PATTERN JURY INST. T.P.I.—CIVIL APPENDIX C (2012 ed.); 6 WASH. PRAC., WASH. PATTERN JURY INST. CIV. WPI 34.04 (6th ed). Of the states that I examined, only New Jersey's pattern jury instructions were gender neutral. N.J. R. 1:13-5.

[68] Of the states above, Alaska, California, Minnesota, New Jersey, New York, and Washington expressed preference for race-neutral tables or statistics. *Id.* The remainder of the states supported race-based tables. *Id.*

C. SCHOLARS

1. Articles and Law Reviews

Since the 1990s, a growing body of literature has drawn attention to the discriminatory effects of using race- and gender-based tables in damage award calculations.[69] Scholars recognize that a trial judge's decision to admit non-blended tabels in damage award calculations can be couched as state action and is thereby unconstituional.[70] They generally argue that race- and gender-based tables perpetuate existing social inequalities by locking plaintiffs into the life expectancies or work life expectancies of their historical racial and gendered predecessors. Yet, as demonstrated above, courts largely ignore these critiques.[71]

A few dedicated scholars, primarily Martha Chamallas and Jennifer Wriggins, are still studying the full legal and societal implications of race- and gender-based future damage awards. These scholars advocate for one of two major solutions to the problem: either using blended tables to calculate loss of earning capacity[72] or using male tables.[73] Although these scholars refer to race-

[69] *See, e.g., infra* note 73, 74 and accompanying text; *See also* Alec Shelby Bayer, *Looking Beyond the Easy Fix and Delving Into the Roots of the Real Medical Malpractice Crises*, HOUS. J. HEALTH L. & POL'Y 111, 128–29 (2005), finding that women—housewives in particular—stand to loose more when non-economic damages are curtailed because the non-economic damages will not take into account that the housewife will no longer be able to clean her house, (arguing, that the value of the housewife's contributions to the family such cooking, running errands etc. will remain uncompensated and she will only be able to recover for medical bills); Amanda Edwards, *Medical Malpractice Non-Economic Damages Caps*, 43 HARV. J. ON LEGIS. 213, 221 (2006). ("[B]ecause of unique harms that affect women and minorities, jury tendencies, and reliance upon flawed economic tables, non-economic damages caps silently plague these groups."); Elain Gibson, *The Gendered Wage Dilemma in Personal Injury Damages*, *in* TORT THEORY 185 (Ken Cooper-Stephenson & Elaine Gibson, eds. 1993) (Gibson attempts to expose "Hidden biases" in calculating damages and examine how these biases contribute to the impoverishment of disabled women.).

[70] *See* Wriggins, Jennifer B., *Constitution Day Lecture: Constitutional Law and Tort Law: Injury, Race, Gender, and Equal Protection*, 63 ME. L. REV 272-73 (2010), *available at* http://mainelaw.maine.edu/wp-content/uploads/2014/01/wriggins-mlr-63.pdf (discussing the equal protection implications of non-blended tables and the plausibility of finding state action).

[71] *See, e.g.*, Anita Bernstein, *What's Wrong With Stereotyping*, 55 Ariz. L. Rev. 655, 711 (2013) (citing *McMillan* for proposition that use of race-neutral data in courts has been given legal effect); *see also* Deirdre M. Smith, *The Disordered and Discredited Plaintiff: Psychiatric Evidence in Civil Litigation*, 31 Cardozo L. Rev. 749, 821 (2010) (citing *McMillan* to support argument that use of race-based statistics should be discontinued); *cf.* Michael I. Meyerson & William Meyerson, *Significant Statistics: The Unwitting Policy Making of Mathematically Ignorant Judges*, 37 Pepp. L. Rev. 771, 797 (2010) (finding that "the introduction of racially-based DNA numbers into a courtroom proceeding is fundamentally misleading"). Martha Chamallas, *Civil Rights in Ordinary Tort Cases: Race, Gender, and the Calculation of Economic Loss*, 38 Loy. L.A. L. Rev. 1435, 1439 (2005); Elizabeth Adjin-Tettey, *Replicating and Perpetuating Inequalities in Personal Injury Claims Through Female-Specific Contingencies*, 49 McGill L.J. 309, 311 (2004) (arguing that, when judges sanction the awarding of depressed damages to tort claimants from historically disadvantaged groups, they reinforce the marginalization of minorities in society).

[72] Martha Chamallas, *Civil Rights in Ordinary Tort Cases: Race, Gender, and the Calculation of Economic Loss*, 38 LOY. L.A. L. REV. 1435 (2005); *see also* Michael Mereyson & William Meyerson, *Significant Statistics: The Unwitting Policy Making of Mathematically Ignorant Judges*, 37 PEPP. L. REV. 771 (2010); Comment, Laura Greenberg, *Compensating the Lead Poisoned Child: Proposals for Mitigating Discriminatory Damage Awards*, 28 B.C. ENVTL. AFF. L. REV. 429 (2001).

and gender-based statistics generally, they do not discuss in much detail the impact that these statistics have on future medical expenses and future pain and suffering. Rather, these scholars limit their analysis to future loss of income. As discussed earlier, these ignored expenses form an important component of companies' ex-ante liability calculations and thus are a critical to damage award calculations.[74]

2. Casebooks.

Critiques of non-blended tables have reached first-year torts casebook. However discussion of racial and gender bias in future damage awards receives far less attention in these casebooks than other doctrinal and economic issues. In a review of fifteen casebooks (a mix of current torts and remedies casebooks), six torts and two remedies casebooks mention or discuss the role of race and gender in damages calculations.[75] Within this subset of eight, most of which are over one thousand pages in length, casebook comments and notes on the subject vary from a few sentences on the use of statistical tables to anchor future damages calculations to a few pages on the critical implications of race- and gender-based statistics.[76]

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[73] The 9/11 Victim Compensation Fund, as discussed by Martha Chamallas, *The September 11th Victim Compensation Fund: Rethinking the Damages Element in Injury Law*, 71 TENN. L. REV. 51 (2003); ASSOCIATION OF TRIAL LAWYERS OF AMERICA CLE, SHOW ME THE MONEY: CALCULATING ECONOMIC DAMAGES (2003).

[74] It is possible that scholars do not focus on future medical costs and pain and suffering awards because using these blended tables might make women worse off. This issue will be discussed below, in my proposed solution to the problem.

[75] George C. Christie, et al., CASES AND MATERIALS ON THE LAW OF TORTS (5th ed. 2012); Dan B. Dobbs, et al., THE LAW OF TORTS (2nd ed. 2011); Meredith J. Duncan & Ronald Turner, TORTS: A CONTEMPORARY APPROACH (2nd ed. 2012); Richard A. Epstein & Catherine M. Sharkey, CASES AND MATERIALS ON TORTS (10th ed. 2012); Ward Farnsworth and Mark F. Grady, TORTS: CASES AND QUESTIONS (2nd ed. 2009); John C. P. Goldberg, et al., TORT LAW: RESPONSIBILITIES AND REDRESS (2nd ed. 2008); James A. Henderson, Jr., et al., THE TORTS PROCESS (7th ed. 2007); Candace S. Kovacic-Fleischer, et al., EQUITABLE REMEDIES, RESTITUTION AND DAMAGES: CASES AND MATERIALS (8th ed. 2011); Douglas Laycock, et al., MODERN AMERICAN REMEDIES: CASES AND MATERIALS (4th ed. 2010); David I. Levine, et al., REMEDIES: PUBLIC AND PRIVATE (5th ed. 2009); Emily Sherwin, et al., AMES, CHAFEE, AND RE ON REMEDIES (1st ed. 2012); Elaine W. Shoben, et al., REMEDIES (5th ed. 2012); Robert S. Thompson, et al., REMEDIES: DAMAGES, EQUITY, AND RESTITUTION (4th ed. 2009); Aaron D. Twerski & James A. Henderson, Jr., TORTS: CASES AND MATERIALS 667-68 (2nd ed. 2008); Frank J. Vandall, ET AL., TORTS: CASES AND PROBLEMS (3rd ed. 2011).

[76] Christie at 1000 (explaining use of non-determinative life expectancy tables or worklife tables to establish the period over which the plaintiff will experience diminished capacity and giving an example of a typical jury instruction on this point in one paragraph), 1007 (noting very briefly the work of Martha Challamas and Jennifer Wriggins); Dobbs at 23-24 (explaining mortality and "worklife" tables as baselines for fixing loss periods may cause controversy because of different statistical expectancies by race and gender in one paragraph); Epstein at 857-59 (noting increasing scrutiny towards worklife expectancy calculations and reproducing a portion of an argument from Martha Challamas. Epstein & Sharkey also report judicial responses to race- and gender-based statistics in *McMillan v. City of New York*, 253 F.R.D. 247, 256 (E.D.N.Y. 2008) and an Israeli Supreme Court case, CA 10064/02 *Migdal Ins. Co. Ltd. v. Rim Abu Hanna* [2005] [IsrCR]. Epstein & Sharkey close this two-page note with reference to the Special Master of the September 11th Victim Compensation Fund's use of the tables based on white males for all victims of the disaster.); Goldberg at 478 (questioning whether the use of race- or gender-specific statistics violates the Equal Protection Clause of the Fourteenth Amendment, or even if not, whether courts should adjust for biases in statistics in two paragraphs.); Henderson at 558-71 (explaining the difference between actual loss of earnings and loss of earning capacity, identifying commonly used life and worklife expectancy tables, and examining the

Five casebooks only touch upon the specific issue of race- and gender-based statistics in future damages calculations.[77] Their discussions are usually limited to a few sentences, but acknowledge potential controversy surrounding non-blended life and worklife expectancy tables and refer to the critical response of scholars like Martha Chamallas, Martha F. Davis, Lucinda M. Finley, Laura Greenberg, August McCarthy, and Jennifer B. Wriggins.[78] Despite their brevity, shorter treatments can convey significant tension: in a two-paragraph note, John C. P. Goldberg questions the constitutionality of race and gender-differentiated damages when they reproduce the effects of past discrimination.[79] Douglas Laycock reminds students that federal employment discrimination laws forbid gender-based disparities in employer-sponsored insurance while race- and gender-based data are still routinely introduced in tort trials without objection.[80]

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challenges of and conflicting judicial approaches to calculating lost earning capacity for (female) homemakers and the young.); Laycock at 211-12 (noting that gender and race-based data are often introduced in tort trials, without objections, for various reasons in a one-paragraph note. Laycock makes an analogy to the insurance industry, where race-based premiums and benefits were generally abandoned but gender-based premiums and benefits persist when allowed by law in another one-paragraph note.); Levine at 528-35 (analyzing Canadian case *Walker v. Ritchie*, [2005] W.D.F.L. 2682, 197 O.A.C. 81, in which a Canadian courts decided whether the use of gender-neutral statistics for a female plaintiff would be erroneous. Levine at 528-31. In case notes spanning from 531-35, Levine discusses determination of lost earning capacity and contrasts the approach of Canadian courts with American courts, one of which decided to use gender-based wages (*Caron v. United States*, 410 F. Supp. 378 (D.R.I. 1975)), two of which lined up with *Walker* (*United States v. Serawop*, 505 F.3d 1112 (10th Cir. 2007) and *Wheeler Tarpeh-Doe v. United States*, 771 F. Supp. 427 (D.D.C. 1991)), and one which reversed appellate court instructions to base a child's lost earning capacity on "some type of average income for persons in the community" (*Greyhound Lines, Inc. v. Sutton*, 765 So.2d 1269, 1277 (Miss. 2000). Levine's case notes also include references to the scholarship of Martha Chamallas, Martha F. Davis, August McCarthy, and Jennifer B. Wriggins. Levine at 533-34. His last case note for *Walker* reviews Judge Jack Weinstein's reasoning in *McMillan v. City of New York*, 253 F.R.D. 247 (E.D.N.Y. 2008), which is also discussed earlier in part II of this paper under the "Shifting Trends" section. Levine at 534-35.); Twerski & Henderson at 667-68 (discussing various difficulties calculating future damages and asking whether young female plaintiffs should receive less compensation than male counterparts because females will probably earn less on average. In the same paragraph on page 668, Twerski and Henderson cite two articles arguing the discriminatory effect of gender-based statistics: Martha Chamallas's *Questioning the Use of Race-Specific and Gender-Specific Economic Data in Tort Litigation: A Constitutional Argument*, 63 Fordham L. Rev. 73 (1994) and Lucinda M. Finley's *The Hidden Victims of Tort Reform: Women, Children, and the Elderly*, 53 Emory L.J. 1263 (2004).).

[77] *See* Christie at 1000, 1007, Dobbs at 23-24, Goldberg at 478, Laycock at 211-12, Twerski & Henderson at 667-68.

[78] Christie at 1007 (citing Martha Chamallas & Jennifer B. Wriggins, THE MEASURE OF INJURY: RACE, GENDER, AND TORT LAW (2011).); Epstein & Sharkey at 857-58 (reproducing a portion of Chamallas's argument in *In The Architecture of Bias: Deep Structures in Tort Law*, 146 U. Pa. L. Rev. 463, 481-83 (1998).); Henderson at 571 (citing Laura Greenberg, *Compensating the Lead Poisoned Child: Proposals for Mitigating Discriminatory Damage Awards*, 28 B.C. Envtl. Aff. L. Rev. 429 (2001).); Levine at 533-34 (citing Martha Chamallas, *The September 11th Victim Compensation Fund: Rethinking the Damages Element in Injury Law*, 71 Tenn. L. Rev. 51 (2003), Martha F. Davis, *Valuing Women: A Case Study*, 23 Women's Rts. L. Rep. 219 (2002), August McCarthy, *The Lost Futures of Lead-Poisoned Children: Race-Based Damage Awards and the Limits of Constitutionality*, 14 Geo. Mason U. Civ. Rts. L. J. 75 (2004).); Twerski & Henderson at 668 (citing Martha Chamallas, *Questioning the Use of Race-Specific and Gender-Specific Economic Data in Tort Litigation: A Constitutional Argument*, 63 Fordham L. Rev. 73, 75 (1994), Lucinda M. Finley, *The Hidden Victims of Tort Reform: Women, Children, and the Elderly*, 53 Emory L.J., 1263, 1281 (2004).).

[79] Goldberg at 478.

[80] Laycock at 211-12.

Three casebooks expand upon this discussion, dedicating pages rather than paragraphs to examining this problem.[81] James A. Henderson, Jr. describes the variables involved in determining lost earning capacity damages and identifies the statistical tables and factors that are taken into account.[82] Richard A. Epstein and Catherine M. Sharkey share a portion of Chamallas's argument against the use of historical tables and present three examples of instances when race- and gender-based statistics were rejected as bases for determining damages.[83] David I. Levine uses the Canadian case *Walker v. Ritchie*—in which the Canadian court decided to allow the use of gender-neutral earnings tables—to compare and contrast the reasoning in various American cases dealing with race- or gender-based tables.[84]

This review of casebook notes on the discriminatory effects of race- and gender-based statistical tables leads us to conclude that very few casebook authors directly address the fairness and constitutional problems presented by race- and gender-based damage awards or the perverse incentives that may be generated by their use in future damages calculations.[85]

III. THE EXISTENCE OF PERVERSE EX-ANTE INCENTIVES

The previous section established the discriminatory practice of courts and states and the lack of sufficient attention from the academia to it. The school bus example in the beginning of the article attempted to demonstrate the perverse ex-ante incentives such practice creates. But how plausible are such incentives? Do potential tortfeasors will really calculate their conduct based on damages tables? In this section I first provide few other theoretical examples, and then discuss some empirical evidence for such incentives in real life situations.

A. THEORETICAL EXAMPLES

1. The FedEx Example.

Imagine you are a high-level manager at FedEx. FedEx has more than 30,000 motorized vehicles traveling every day. On average, it experiences three accidents every day and fatalities or injuries every 2.5 days; lots of harm and lots of money are on the line.[86] All else being equal,

[81] *See* Epstein & Sharkey at 857-859, Henderson at 559-71, Levine at 528-35.
[82] Henderson at 559-71.
[83] Epstein & Sharkey at 858-59 (discussing *McMillan v. City of New York*, 253 F.R.D. 247, 256 (E.D.N.Y. 2008), the Israeli Supreme Court case *Migdal Ins. Co. Ltd. v. Rim Abu Hanna*, and the September 11th Victim Compensation Fund).
[84] *See* Levine at 528-535.
[85] *Cf.* Goldberg at 478, Levine at 535.
[86] *A & I Online: Safety Measurement System*, DEP'T OF TRANSP., http://ai.fmcsa.dot.gov/SMS/Data/Search.aspx (last visited May 14, 2013). *See also* Kim Briggeman, *Concerns Raised over Increase in Trucking-Related Crash Deaths*,

FedEx will rationally, and probably legally, send its trucks through predominantly non-white population centers.

The fact that courts apply the same standard of care across all neighborhoods—enforcing a universal speed limit—might promote the misconception that race and gender don't matter. That of course is a mistake. The distorted compensation scheme will have two effects: one on FedEx's care level and the other on its activity level.[87] First, FedEx will independently decide to drive more slowly in white neighborhoods. Why? White neighborhoods usually have higher average incomes than black neighborhoods. And, as FedEx's expected liability increases, so too does its level of optimal precaution (recall the Learned Hand Formula). The striking effect is that FedEx will apply a different standard of care when it deals with whites than when it deals with blacks, even though courts don't. Second, these perverse incentives will affect FedEx's activity level. Because driving slowly costs more in terms of added delivery time, FedEx might rationally decide to reroute through black neighborhoods, where its drivers face less liability costs associated with driving faster. This is the distortion in activity level.

The bottom line is that FedEx has incentives to send its vehicles to speed in black neighborhood.

2. The Polluting Factory Example

Imagine a polluting factory owner is deciding where to purchase land to build her new factory. She can choose between two identically sized plots of land with equal access to a key highway—one in a predominantly white neighborhood, and one in a predominately black neighborhood. Acting rationally, she'll place her factory in the black neighborhood to take advantage of the lower liability costs she might incur from pollution. This example demonstrates activity level distortion.

Alternatively, if the company already has a factory it might face the decision of whether to install smoke stacks, which diminish the negative effects of pollution. In determining whether to make this investment, the factory will weigh the cost of instillation against potential liability costs. In a white neighborhood, the factory might decide to install smoke stacks, because the expected liability is higher. However lower tort liability costs in the black neighborhood might not provide enough incentive for the instillation. This is a distortion in care level.

3. The Chin Implant Example

THE MISSOULIAN (Dec. 18, 2011), *available at* http://missoulian.com/news/local/concerns-raised-over-increase-in-trucking-related-crash-deaths/article_fc944f86-2923-11e1-b9f0-001871e3ce6c.html.

[87] STEVEN SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW 5 (2007).

Imagine a company that produces products for use in plastic surgery, including breast and chin implants. The company sells the same number of each product, however women predominantly use the breast implants, whereas men and women use the chin implants in equal measure. The company has a strict budget for products testing and both products are likely to cause a similar expected harm. Acting rationally, and all else being equal, the company will allocate proportionally less funding for the testing of breast implants than for the testing of chin implants, because, in the aggregate, it will suffer greater liability costs for products used by men than for products used by women.[88] This example demonstrates a distortion in care level.[89]

B. THE EMPIRICAL EVIDENCE

The examples above play out in a multitude of theoretical contexts. But does evidence show that companies are actually making these calculations? Take for example, a leaked 2005 Wal-Mart memo highlighting the company's strategic consideration of costs associated with certain demographics. Among other things, the memo proposed discouraging unhealthy people from working at Wal-Mart."[90] The memo encouraged Wal-Mart to ensure that "all jobs [would] include some physical activity (e.g. all cashiers do some cart-gathering)" to dissuade unhealthy individuals from seeking open positions.[91] The memo further stated, "[i]t will be far easier to attract and retain a healthier work force than it will be to change behavior in an existing one. . . . These moves would also dissuade unhealthy people from coming to work at Wal-Mart."[92] Quite simply, the memo demonstrated a rational actor assessing the high healthcare costs of obese workers—and the negative effects of those costs on Wal-Mart's bottom line.

Without a similar "smoking-gun" memo it is hard to prove discriminatory intent, and we are therefore left with showing something akin to disparate impact. Take for example the fact that some consumer goods cost women more than identical goods cost men. What is the explanation for this "gender tax"? Company executives attributed the cost differential between male and female shampoo and deodorant to "differences in packaging and foaming action," but the cost

[88] Note that this case is not as clear-cut as the cases above. Generally, the bulk of damage awards come from loss of future earning capacity, which is based on statistics that disadvantage women. However, a portion of damage awards (future medical expenses and pain and suffering) will be based on life expectancy statistics that disadvantage men. If companies were to determine that future medical expenses and pain and suffering constitute the bulk of their potential damage liability, their decisions may reverse—and result in less testing for male-targeted products.
[89] But perhaps this example is not ideal, given other forms of sexism in our society: a woman's "value" might be perceived to depend on physical attributes, so juries may award more money to women suffering cosmetic harm.
[90] Steve Green House and Michael Barbaro, *Wal-Mat Memo Suggests Ways to Cut Employee Benefit Costs*, N.Y. TIMES, Oct. 26, 2005, *available at* http://www.nytimes.com/2005/10/26/business/walmart-memo-suggests-ways-to-cut-employee-benefit-costs.html?_r=0.
[91] *Id.*
[92] *Id.*

differential could also arise from built-in liability costs accounting for higher female life expectancy. [93]

One may wonder whether bad publicity, boycotts and adherence to social norms more generally might prevent targeting. The remainder of this section discusses three areas where there is a sufficient empirical evidence documenting real life race-or-gender-based disparity, evidence which raises the specter of forbidden discrimination.

1. Health care.

There are numerous studies and scholarly articles confirming that minorities across the U.S. receive inferior healthcare treatment.[94] For example, a Harvard study conducted for the City of New York documented higher numbers of negligently caused adverse actions in hospitals

[93] Company executives attributed the cost differential to "differences in packaging and foaming action," but the cost differential could also arise from built-in liability costs accounting for higher female life expectancy. LearnVest, *The 'Woman Tax': How Gendered Pricing Costs Women Almost $1,400 A Year*, FORBES (May 15, 2012 9:53AM), *available at* http://www.forbes.com/sites/learnvest/2012/05/15/the-woman-tax-how-gendered-pricing-costs-women-almost-1400-a-year/. Although we explored this possibility, we were unable to find any direct evidence of such calculations.

[94] Lisa C. Ikemoto, *Raciail Disparities in Health Care and Cultural Competency*, 48 ST. LOUIS U. L.J. 75, 76 (2003)("A close look at the health care industry's institutional practices reveals an English-only, ethnocentric, racist culture that does interfere with patient care."); Timothy Stolzfus Jost, *Racial and Ethnic Disparities in Medicare: What the Department of Health and Human Services and the Centers for Medicare and Medicaid Services Can and Should Do*, 9 DEPAUL J. OF HEALTH CARE L., 667, 667 (2005) (noting that there is a disparity in the quality of treatment that black Medicare patients receive compared to white Medicare patients, and pointing out what "those who administer the Medicare program can do to address [this]."; Sidney D. Watson, *Race, Ethnicity and Quality of Care: Inequalities and Incen7tives*, 27 AM. J.L.& MED. 203, 203 (2001) ("[H]ealth care professionals provide different—and generally less—care to their minority patients. When hospitalized, African-Americans receive fewer surgical interventions, diagnostic tests, medical services, and less optimal interventions than whites—even when their diagnosis, symptoms, and source of payment are the same."); Michael Foster, *Don't Sacrifice the Tort System on the Altar of Health Care Reform*, 68 FLA. B.J. 22, 28 (1994) ("This work suggests that even among insured patients, those who are black or from poor neighborhoods receive worse care."); Amber E. Barnato et al., *Hospital-Level Racial Disparities in Acute Myocardial Infarction Treatment and Outcomes*, 43 MEDICAL CARE 308 (2005)("These findings indicate that, on average, blacks went to hospitals that had lower rates of evidence-based medical treatments, higher rates of cardiac procedures, and worse risk-adjusted mortality after AMI."); Jerry Cromwell, *Race/Ethnic Disparities in Utilization of Medicare Ischemic Heart Disease Beneficiaries*, 43 MEDICAL CARE 330 (2005) ("Despite having similar Medicare health insurance coverage, elderly utilization and IHD mortality rates differ markedly not only between whites and minorities, but within minority groups themselves."); *Racial Disparities in Health Care: Confronting Unequal Treatment: Hearing Before the Subcomm. on Criminal Justice, Drug Policy and Human Resources of the H. Comm. on Gov't Reform*, 107th Cong. (2002) (discussing the IOM's study's findings of racial disparity in health care treatment; witnesses "address[ed] a range of . . . initiatives that must be undertaken if we are to achieve the . . . Nation's goal, of ending racial disparities in health care.") ; *But see* Darrell J. Gaskin et al., *Do Hospitals Provide Lower-Quality Care to Minorities than to Whites?*, 27 HEALTH AFFAIRS 518 (2008) (suggesting that "when minority patients receive hospital care, they receive the same standard of care that white patients receive" and, therefore, the focus should be on "eliminating disparities in quality *across* hospitals rather than *within* hospitals.")

serving minority communities.[95] Another study conducted by the Institute of Medicine provided similar results.[96]

The reason for this disparity is not fully understood. It could be however related to the lower liability risks minorities present. In the event of a medical malpractice suit involving a minority or female plaintiff, health care providers will be required to pay fewer damages than if a male white plaintiff were to have brought the suit.[97] Additionally, caps on non-economic damages in medical malpractice suits, which most states have enacted, will further exacerbate this effect. Minorities and females are less likely to receive a high amount of economic damages because of future-loss-of-income calculations. Before caps on non-economic damages were instituted, the pain and suffering component of non-economic damages could, and often did, make up for the lower amount received through economic damages—that is no longer the case. The caps on non-economic damages greatly limit the overall recoveries of women and minorities. Once those damages are capped, these plaintiffs are less likely to find a lawyer that will take the case at all, as lawyers in that area work on a contingency fee basis.[98]

2. Pollution.

Pollution is another area where disparity exists. Extensive literature highlights the relationship between high-polluting entities and low-income communities. The general consensus among scholars and scientists is that there is a disproportionate allocation of environmental hazards, pollution, and locally undesirable land uses (LULUs) in poorer minority communities.[99] Recent studies confirm this consensus.[100]

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[95]The study analyzed different possible risk factors associated with suffering from an "adverse event" (injuries resulting from medical interventions) and found that "blacks had higher rates of adverse events and adverse events resulting from negligence . . ." HARVARD MEDICAL MALPRACTICE STUDY, PATIENTS, DOCTORS, AND LAWYERS: MEDICAL INJURY, MALPRACTICE LITIGATION, AND PATIENT COMPENSATION IN NEW YORK 6-2 (1990); *see* Joanne Doroshow & Amy Widman, *The Racial Implications of Tort Reform*, 25 J.L. & POL'Y 162, 162–63 (2007) (discussing the Harvard Medical Malpractice study and the larger implications of tort reform on minorities). Although the study found that "these differences overall were not significant [,]" the study did find that "higher rates of adverse events resulting from negligent events were found in hospitals that served a higher proportion of minority patients." *Id.*

[96]The 2002 study conducted at the request of Congress to "assess the extent of racial and ethnic differences in the quality of health care received by patients, not attributable to . . . factors such as access to care, ability to pay, or insurance coverage [.]" The study found that, "[r]acial and ethnic disparities in health care exist even when insurance status, income, age, and severity of conditions are comparable. "Alan Nelson, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, 94 J. NAT'L MED. ASS'N 666, 666 (2002) (highlighting the key findings from its study found in INSTITUTE OF MEDICINE, UNEQUAL TREATMENT: CONFRONTING RACIAL AND ETHNIC DISPARITIES IN HEALTH CARE (Brian D. Smedley, Adrienne Y. Stith and Alan R. Nelson, eds., 2002).

[97] Because minorities on average make less than white individuals, affecting their economic damages (which are calculated by using race-and gender specific data that "project that white men are worth more economically than women or minorities."). Edwards, *supra* note 81.

[98] *Id.*

[99] Kathy Steward Northern, *Battery and Beyond: A Tort Law Response to Environmental Racism*, 21 WM. & MARY ENVTL. L. & POL'Y REV. 485, 497–98 (1997) ("Although there was a delayed acknowledgment of the

While the literature on environmental injustice documents this correlation between the locations of disadvantaged towns or neighborhoods and industrial activities, evidence demonstrating 'causation' is lacking. It is possible that the correlation is attributable to disadvantaged groups' choices to live near industries due to the other benefits they receive, such as lower property prices and proximity to work.[101] However, where research has taken place it calls into question the likelihood of such the choice/convenience model.[102] Indeed, the "choice" that disadvantaged groups have in living near environmental hazards may be an illusory one. For example, black families seeking refuge from the Jim Crow South were often limited from purchasing property in white neighborhoods due to discriminatory neighborhood policies and mortgage lending practices. Instead of going back to the South, the families purchased property in the only affordable, accessible areas they could—land on or near environmentally hazardous conditions.[103] Similarly, there is a history of legislative bodies targeting black communities and families for hazardous waste dumps.[104] In one notable example, the State of North Carolina dumped toxic waste in Warren County, North Carolina, targeting an area that was not scientifically suitable to containing the waste, but populated by mostly black, poor, rural, and politically powerless families whose historic protests had little effect on state authorities.[105] Clearly the options for citizens of Warren County, individuals living in poverty, to pack up and move away after state targeting, could hardly be characterized as a choice in the conventional sense.

Though Warren County involved a majority black community, black families living near environmental hazards have been treated by legislative bodies in a way that their comparable white counterparts have not, showing a race-dependent concern for liability on a more granular level. For example, in Dickson County, Tennessee, a state authorized landfill contaminated the

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disproportionate allocation of environmental burdens, there is presently a strong consensus that, in the United States . . . the burdens associated with the national effort to control pollution fall on those who are poor or politically weak.").

[101] Lynn E. Blais, *Environmental Racism Reconsidered*, 75 N.C. L. Rev. 75, 80-81 (1996).

[101] Lynn E. Blais, *Environmental Racism Reconsidered*, 75 N.C. L. Rev. 75, 80-81 (1996).

[102] Alice Kaswan, *The Current State of Enviornmental Law*, 24 Fordham Envtl L. Rev. 149, 152 ([the 'it's just the market' explanation] does not suffice. In a thorough study of housing market dynamics associated with hazardous waste facilities, Professor Vicki Been, who had initially proposed the hypothesis, found little empirical evidence to support the claim that existing demographics reflect post-siting population shifts. Although that study does not rule out the role of post-siting housing market dynamics in some instances,the fairness of decision-making processes remains a salient question.") (internal citations omitted). *See also, generally,* Vicki Been & Francis Gupta, *Coming to the Nuisance or Going to the Barrios? A Longitudinal Analysis of Environmental Justice Claims, 24 ECOLOGY L. Q. 1 (1997)*

[103] Jane Kay & Cheryl Katz, Pollution, *Poverty and People of Color: Living with Industry*, SCI. AM., Jun. 4, 2012, available at http://www.scientificamerican.com/article/pollution-poverty-people-color-living-industry/.

[104] *See generally,* Robert D. Bullard & Beverley Wright, Disastrous Response to Natural and Man-Made Disasters: An Environmental Justice Analysis Twenty-Five Years After Warren County, 26 UCLA J. ENVTL. L. & POL'Y 217 (2008)

[105] *Id.* at 223–4. Only in 2003 did the citizens of Warren County get redress for the hastily planed142 acre toxic dump in their backyards: state and federal sources spent $18 million to detoxify or neutralize contaminated soil stored in Warren County since 1982. *Id.* at 221.

wells of both African American and white families. However, the treatment of the two groups was hardly similar.[106] For one, testing and monitoring of the black families' wells differed from the treatment of white families—the state government did not even include the black families' water wells in a water toxicity study.[107] Indeed, the government's heightened concern for the liability imposed by white families versus comparable black families bared out in public: the Dickson County Commissioners voted, to unanimously settle lawsuits with several white families that alleged groundwater leaks, and ignored the black family. [108]

As the now infamous leaked World Bank memo indicates, companies are considering liability costs in assessing their plant locations.[109] There is no reason to think that similar calculations are not being made as to domestic legal liability. Several industries are ripe for such calculations—although no leaked internal memos confirm that they are doing so. Under the current legal regime, companies are not required to consider the impact their polluting facilities might have on poor or minority neighborhoods.[110] In *In re: Chemical Waste Management of Indiana, Inc.*, an Indiana Agency denied review of a Chemical Waste Management facility permitting decision on the grounds that resulting social and economic effects on the community should not be taken into account.[111] Furthermore, when companies do violate environmental laws or regulations in poor or minority neighborhoods, it is unlikely that they will have to suffer severe consequences, if any consequences at all.

3. Lead-Based Paint

A final example that illustrates the point is the potential targeting by landlords for managing the toxic effects of lead-based paints. In 1991, the Centers for Disease Control and prevention identified lead-based paint as the "most common and societally devastating environmental

[106] *See id.* at 237.
[107] *Id.*
[108] *Id.* at 236.
[109] The then World Bank's Chief Economist Lawrence Summers wrote: "Just between you and me, shouldn't the World Bank be encouraging MORE migration of the dirty industries to the LDCs [Less Developed Countries]? . . . . The measurements of the costs of health impairing pollution depend on the foregone earnings from increased morbidity and mortality. From this point of view a given amount of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that." Lawrence Summers, Memorandum (Dec. 12, 1991) available at *http://www.whirledbank.org/ourwords/summers.html*.
[110] *See* In re: Chemical Waste Mgmt. of Ind., Inc., 6 E.A.D. 1995 WL 395962 at *5. *See generally*, James T. O'Reilly, 1 TOXIC TORTS PRACTICE GUIDE § 8:11 (2013) for a detailed explanation of how treatment, storage, and disposal facilities are regulated.
[111] "[T]he Agency must issue the permit, regardless of the racial or socio-economic composition of the surrounding community and regardless of the economic effect of the facility on the surrounding community." In re: Chemical Waste Mgmt. of Ind., Inc., 6 E.A.D. 1995 WL 395962 at *5.

disease of young children."[112] Lead poisoning from lead-based paints can cause learning disabilities, and lead to serious behavioral problems.[113] Children are at the greatest risk of lead poisoning because they tend to be exposed to more lead than adults, and because their lead absorption rates are higher. The unborn are also at risk: lead can pass from the woman to her fetus across the placenta.[114] Since low-income, minority families are more likely to occupy older homes with lead-based paint, the majority of children poisoned by lead in the U.S. are poor African American and Latino children.[115]

Scholars have identified the perverse incentives behind landlords' motivation to clean up the toxic hazards in neighborhoods most affected by lead paint: because it is cheaper to injure poor and minority children, landlords' have a lesser incentive to remove lead-based paint from deteriorating homes in those communities.[116] The underlying reason is a familiar one: because most of the victims of lead-based paint poisoning are children, and there is a lack of individualized evidence that indicates what career path the child would have taken and how much the child would have earned, courts rely on statistics from non-blended tables which provide awards for black and Hispanic defendants that are considerably lower than would be for comparable white victims.[117] Judge Weinstein summarized the effect of these perverse incentives—the use of race-based statistics ensure that lead poisoned children will continue to be inadequately compensated for "their present and future."[118]

In sum, both theory and empirical evidence suggest that at least to some level perverse ex-ante incentives exist.

The next part engages the various theories of tort law. It scrutinizes race-and-gender-based statistical tables from within. Part A explores such use from a distributive justice perspective, Part B from a corrective justice perspective, and Part C from an efficiency perspective.

IV. THE VARIOUS OBJECTIVES OF TORT LAW AS A REASON FOR BIAS

[112] CENTERS FOR DISEASE CONTROL, U.S. DEP'T OF HEALTH AND HUMAN SERVS., STRATEGIC PLAN FOR THE ELIMINATION OF CHILDHOOD LEAD POISONING at xi (1991)
[113] Clifford L. Rechtschaffen, *The Lead Poisoning Challenge: An Approach for California and Other States*, 21 HARV. ENVTL. L. REV. 387, 390 (1997).
[114] *Id.*
[115] *See* MARTHA CHAMALLAS & JENNIFER B. WRIGGINS, THE MEASURE OF INJURY: RACE, GENDER, AND TORT LAW 138–53 (2010)
[116] Martha Chamallas, *Civil Rights in Ordinary Tort Cases: Race, Gender, and the Calculation of Economic Loss*, 38 LOY. L.A. L. REV. 1435, 1441 (2005) ("[B]ecause it is cheaper to injure poor minority children, there is less incentive for defendants to take measures to clean up toxic hazards in the neighborhoods most affected by lead paint."); Michael I. Meyerson & William Meyerson, *Significant Statistics: The Unwitting Policy Making of Mathematically Ignorant Judges*, 37 PEPP. L.REV. 771, 797 (2010) ("[W]hen damages for injuring members of minority groups are lowered, the legal regimen [has] the perverse result of encouraging torts against them.").
[117] *Id.* at 1440–1.
[118] G.M.M. ex rel. Hernandez-Adams v. Kimpson, 13-CV-5059, 2015 WL 4572470, at *25 (E.D.N.Y. July 29, 2015).

At its core, tort law functions to restore the victim (as much as possible) to the position he would have been in but for the injury he suffered; this is the principle of *restitutio ad integrum*.[119] Because of the individualized nature of this function, it is logical that courts would account for plaintiff specific characteristics in determining damage awards. Therefore, in the abstract, it is no surprise that racial and gender characteristics are included alongside age, education, health, and habits when imagining the hypothetical, uninjured plaintiff. From this perspective, given the function of tort law, it seems appropriate—and, perhaps, even obvious—that the use of race- and gender-based statistical tables would be commonplace. [120]

However, as we dig deeper into the (at times) competing rationales of tort law, the rationality of using non-blended statistics to calculate tort damages becomes much less convincing. In the U.S., there is a fierce debate between corrective justice (and its offspring: civil recourse) theorists and legal economists (who are mainly concerned with optimal deterrence) about the best way to understand tort law.[121] These theorists are usually monists. That is, they believe only one theory can, and should, explain tort law doctrine and practice. Yet, despite their many disagreements, corrective justice theorists and legal economists all (surprisingly) agree that tort law should *not* take into consideration notions of anti-discrimination. For corrective justice theorists, this is because they are committed to the Aristotelian acoustic separation between corrective justice (which deals with the bilateral interaction between a doer and a sufferer) and distributive justice (which deals with the just division of goods, powers, burdens, etc. in society). For corrective justice theorists, problems of discrimination are distributive justice problems and therefore should be handled at the societal level, via anti-discrimination statutes, the tax and transfer system, etc. Alternatively, legal economists believe that race and gender should be taken into account in calculating damages because they believe that optimal deterrence requires

[119] Gibson, *supra* note 70, at 186, attacks the principle of *restitutio ad integrum* (restoring victims to pre-accident status) as rife with issues related to discrimination. Gibson argues that the tables used to calculate damages are based on antiquated and deceptive data and that even if the evidentiary inaccuracies underlying the actuarial data could be rectified, there's still the problem that the *restiuttio* principle replicates *de facto* wage inequalities. *Id.* at 197–98; *see also* Elizabeth Adjin-Tettey, *Replicating and Perpetuating Inequalities in Personal Injury Claims Through Female-Specific Contingencies*, 49 MCGILL L.J. 309, 311 (2004) (also challenging the concept of *restitutio in integrum*, because it results in under-compensation of certain individuals who are part of marginalized groups). Adjin-Tettey notes that Tort law awards damages to return a claimant to the status quo ante and that this determination makes use of certain "realities" concerning a plaintiff's future earnings. *Id.* Thus, inequalities based on race, gender, mental capacity etc. must be taken into account. *Id.*

[120] Wriggins identifies a "tension" in tort law and legal culture between resolving tort claims on an individualized basis and "the conflicting but weaker principle . . . that equal treatment of all people [is] important." Jennifer Wriggins, *Whiteness, Equal Treatment, and the Valuation of Injury in Torts, 1900–1949*, *in* FAULT LINES, TORT LAW AS CULTURAL PRACTICE 156, 156–57 (David M. Engel & Michael McCann, eds. 2009). Wriggins goes on to note that "[a]n injury to a black person that was similar to a white person's injury under comparable circumstances should result in similar liability determinations and similar damages."; however, tort law through its "enforcement mechanisms" makes it "very difficult to compare results" because "each injury [is] conceptualized as different and each person [is] different." *Id.* at 161. Chamallas argues that the "make whole" notion of tort law is in conflict with race- and gender-based statistics because the statistical estimates "do not mirror current or future realities" and thus do not make a plaintiff any more whole than blended tables would. Chamallas, *supra* note 72, at 1451-53.

[121] Contrast Kaplow and Shavell with Coleman, Goldberg and Zipursky, Weinrib and Keating.

defendants to pay damages that most closely resemble plaintiffs' actual loss. These economists believe that where information is free and accurate, it should be accounted for. From an efficiency perspective, legal economists, like corrective justice theorists, claim that any distributional considerations should be addressed outside the tort law system.

A third group of tort theorists are pluralists.[122] Not only do they believe that corrective justice and efficiency can coexist, but they aspire to account for distributive justice as well. Few legal systems approach tort law from a pluralist perspective.[123]

In the first two subsections, I very briefly demonstrate how corrective justice and distributive justice theories of tort law *can* accommodate using blended race- and gender-based statistical tables. A full discussion of corrective justice and distributive justice in the context of discrimination is beyond the scope of this paper.

My main focus, however, is efficiency. In the third subsection, I first show that conventional efficiency analysis suggests that targeting the disadvantaged is socially desirable. I then attempt to save economic analysis of law from this embarrassing result by providing several possible outlets from which to draw the conclusion that the use of blended race- and gender-based tables is necessary to legal economists' pursuit of optimal deterrence.

A. DISTRIBUTIVE JUSTICE PERSPECTIVE

Distributive justice theorists are often pluralist who adopt more than a single rationale for the justification of tort law.[124] They acknowledge both corrective justice and law-and-economics rationales, while also reasoning that social good can and should arise from tort law's distributive capabilities.[125] I very briefly discuss the distributive justice rationale of tort law first because it seems most natural for its subscribers to readily adopt the use of blended tables in the calculation of tort damages awards because the distributive benefits of such tables are clear. A full account of the subject is beyond the scope of this paper.

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[122] Itzhak Englard, Ariel Porat

[123] E.G the Israeli one.

[124] *See e.g., id*. at 278; Ronen Avraham & Issa Kohler-Hausmann, *Accident Law for Egalitarians*, *Legal Theory*, **12** (2006), 181, 217 ("Our intuitions about fairness in compensation for misfortunes and liability for careless actions are best captured when we integrate insights of both [restorative justice] and [distributive justice] in theorizing what justice demands in liability for risks and compensation for harms. "); Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming both Deterrence and Corrective Justice*, 75 Tex. L. Rev. 1801 (1997); Izhak Englard, The Philosophy of Tort Law (1993); Guido Calabresi & Jon T. Hirschoff, *Toward a Test for Strick Liability in Tort*, 81 Yale L.J. 1055 (1972); Guido Calabresi & Alvin K. Klevorick, *Four Test for Liability in Torts*, 14 J. Legal Stud. 585 (1985); Ariel Porat & Alex Stein, Tort Liability Under Certainty (2001).

[125] *See id*.

In short, distributive justice rationales in tort law can be conceptualized as one rationale based on three primary theories: "fairness,"[126] "loss-spreading,"[127] and "egalitarianism."[128] First, loss-spreading reasons that "all things being equal, accident losses should be spread across many bearers" because small predictable losses hurt less than abrupt losses which are considerable and unpredictable.[129] Loss-spreading is supported by Calabresi's reasoning that tort law should not only reduce primary accident costs—the absolute loss caused by the accident—but should also seek to reduce secondary accident costs—which are the negative effects of those costs on the individuals required to bear them.[130] Accordingly, policy makers should not only care about the size of accident costs but also whether their bearers belong to advantaged of disadvantaged groups.

Second, distributive justice theorists believe that *fairness* is a crucial consideration of tort law. From this perspective, "the distributive effects of a legal rule, including the effects on third parties" are relevant in judging the rule's "desirability."[131] Keating, for example, adopts the view that tort law is a matter of the fair apportionment of the burdens and benefits of mutually beneficial but risky activities. This contradicts corrective justice theorists, who argue that tort law is a matter of wrongdoing and redress. Fairness only factors into the corrective justice approach indirectly, if at all. Under the distributive justice approach, fairness is the distributive criterion.[132] Thus, fair distribution of the burdens and benefits of risky activities occurs when those who reap the benefits of activities also bear their burdens, even if no wrongdoing was involved. Under this approach, costs of non-negligent accidents are not left only on the unfortunate victims, and costs of negligent accidents are not left only on the unfortunate doers whose wrongdoing causes injury.[133]

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[126] Gregory Keating, *Distributive and Corrective Justice in the Tort law of Accidents*, 74 S. Cal. L. Rev. 193 (2000) at 219-21.

[127] *See* Calabresi, The Costs of Accidents at 39-45. Though Calabresi discusses "loss-spreading" in the context of efficiency, namely as it relates to over-deterrence, the consideration has an undeniable justice element as well.

[128] *See* e.g., Taschi Keren-Paz, *Egalitarianism as Justification: Why and How Should Egalitarian Considerations Reshape the Standard of Care in Negligence Law?*, 4 Theoretical Inq. L. 275 (2005); Ken Cooper-Stephenson, *Corrective Justice, Substantive Equality and Tort Law*, in Tort Theory 48 (Ken Cooper-Stephenson & Elaine Gibson Eds., 1993).

[129] Karen-Paz, *supra* note 80, at 284.

[130] Calabresi, *supra* note 128, at 26-27.

[131] *Id*. at 284.

[132] *See also*, Avraham & Kohler-Hausmann, *supra* note 125 at 181 ("[T]he theory of corrective justice, along with its institutional embodiment of tort law, is at odds with an egalitarian commitment to fairness because it allows luck an unjustifiable role in determining dissimilar liability for similar wrongs and dissimilar compensation for similar losses to bodily integrity.").

[133] *See id.*, at 218-19 ("[O]nce someone is negligent, she should bear liability even if the damage is remote (as in *Palsgraf v. Long Island R.R.*, 162 N.E. 99 (1928)), if it is not clear that the negligent act caused the damage at all (as in *Summers v. Tice*, 199 P.2d 1 (1948)), if it is clear that it did not (as in *Hymowitz v. Eli Lilly & Co*., 539 N.E.2d 1069 (N.Y 1989)), or if the defendant cannot disprove her causation of harm (as in *Sindell v. Abbott Laboratories*, 607 P.2d 924 (Cal, 1980)).."); *see also* Keating surpa note 127 at 202.

Finally, some distributive justice theorists support a third theory of tort-law, namely egalitarianism.[134] Proponents of an egalitarian regime hold that the standard of care owed by individuals depends on their level of advantage in society: the rich should take more care than equally situated poor.[135] Whereas Keating's conception of fairness ignores parties' relative socio-economic condition, the egalitarian approach does not.

The ability to reduce the discriminatory effects of tort law by requiring the use of blended tables is supported by each of the three primary rationales adopted by distributive justice theorists. First, proponents of a loss-spreading theory should welcome the use of blended tables. Because targeting exposes disadvantaged populations to substantially greater probability of actual injury or death, non-blended tables cause costs of accidents to fall in the wrong place, increasing the secondary accident costs. Next, distributive justice theorists adopting a fairness rationale will be inherently inclined to support the adoption of blended tables in the calculation of tort-damages. Because the use of non-blended tables imposes a risk that some parties will be undercompensated, fairness requires that this risk be equally distributed among all demographics. Finally, distributive justice theorist adopting an egalitarian perspective should be equally welcoming of mandated use of blended tables in the calculation of tort-damages as such tables favor the worse-off.

B. CORRECTIVE JUSTICE PERSPECTIVE

For better or for worse, there is no one theory of corrective justice. Yet, some common threads prevail. As Ernest Weinrib puts it, corrective justice is the idea that imposing liability on one who injures another rectifies the injustice inflicted.[136] According to corrective justice, tort law requires the defendant to redress the harm caused to the plaintiff. Narrowly read, it works to hold defendants accountable for the harms they have caused—and provides some ex-post justice to redress that harm.[137] This perspective has sheltered prominent corrective justice theorists from any obligation to argue against the inclusion of racial and gender characteristics in the calculation of damage awards. Because corrective justice is about justice between the parties themselves, and not in society at large, social problems such as race or gender discrimination are not part of the corrective justice apparatus.

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[134] Tsachi Karen-Paz, *An Inquiry into the Merits of Redistribution Through Tort Law: rejecting the Claim of Randomness*, 16 Can. J.L. & Jr. 91 (2003); Tsachi Keren-Paz, *The Limits of Private Law: Tort Law and Distributive Justice*; Ken Cooper-Stephenson, *Economic Analysis, Substantive Equality and Tort Law,* in *Tort Theory* 131 (Ken Cooper-Stephenson & Elaine Gibson eds., 1993); Avraham & Kohler-Hausmann, *Supra* note 125 at 184.

[135] Keren-Paz argues that since "[f]indings of negligence are based on the failure to balance properly between one's interest and those of another," a morally relevant criterion for determining the extent to which defendants should burden themselves "in order to prevent a loss to potential victims . . . is the relative ability of the injurer and victim to bear precaution costs and expected accident loss, respectively." Karen-Paz, *supra* note 129, at 278..

[136] Ernest Weinrib, *Corrective Justice in a Nutshell*, 52 TORONTO L.J. 349 (2002).

[137] DAN B. DOBBS, PAUL T. HAYDEN & ELLEN M. BUBLICK, THE LAW OF TORTS § 10 (2d ed.); Rivlin, *supra* note 43, at 23.

One way to "save" corrective justice is to take a broader view of the corrective justice rationale and to see it as embracing notions of anti-discrimination. There are two ways to arrive at this conclusion. First, to observe that tort law should not really compensate the victim for loss of income, but rather for loss of income *capacity*. Viewed this way, it is easier to see why a white boy and a black girl should receive the same compensation for similar injuries. Their income capacity, as a normative matter, should be identified as being equal. The life story is yet to be written, and their stories should be given an equal chance. This reading helps to justify incorporating anti-discrimination objectives into the calculation of damages for lost wages, which includes estimations of both future salary and future worklife years. A similar conception might help explain the removal of discrimination from other damages components, such as future medical costs and future pain and suffering, where mortality tables are relevant.

The second, even broader, way to "save" corrective justice is to read basic human rights into its framework. The Israeli Supreme Court used this notion of corrective justice as part of its rationale in holding race- and gender-neutral statistics were needed to calculate an Arab girl's loss of earning potential. One justice deemed the rationale a "new reading of corrective justice which embraces fundamental values and universal creeds."[138] Under this conception of corrective justice, race- and gender-blended statistics are not in conflict with the goals of tort law. However, even the Israeli case only dealt with wage loss. It did not deal with medical costs and pain and suffering awards.

There might still be another way to save corrective justice. To do that one would need to ponder on how victims' right to rectification in a *constitutional democracy*—a system of many rights—impacts the operation of tort law. The argument in short is that within a constitutional democracy, the manner in which the common law carries out its corrective justice aims will be influenced by constitutional norms. A tortfeasor who harms a victim, may not later redress the victim outside the scope of the victim's constitutional rights. As our tort law has long recognized, the eggshell skull rule requires tortfeasors to take their victim as they find them physically. Within a constitutional democracy, one can argue, the tortfeasor must also take the victim within the scope of their constitutional rights. If the constitutional norms are such that an individual may not be subjected to discrimination on the basis of their gender and race, then corrective justice theorists, in calculating tort damages, must curtail to those constitutional norms as well.[139]

[138] Rivlin, *supra* note 43, at 23.

[139] Another possible way to save corrective justice is to build on the distinction between "full compensation" and "fair compensation". See generally John C.P. Goldberg, *Two Conceptions of Tort Damages: Fair Compensation v. Full Compensation*, 55 DePaul L. Rev. 435, 437-38 (2006).

C. EFFICIENCY PERSPECTIVE

Perhaps the most problematic consequence of incorporating race- and gender-neutral statistics into tort law is the inefficiency such adoption could inflict on tort law's goal of incentivizing optimal levels of desirable behavior. As demonstrated above, use of race- and gender-based statistics incentivize potential tortfeasors to direct dangerous behavior towards groups based on race or gender. But, is this "undesirable behavior"—which the use of non-blended statistics inflicts on the tort law system—*inefficient*? And if it is not inefficient, is it still undesirable?

In this section, I explain in more detail why conventional economic analysis of law *supports* targeting the disadvantaged under the current tort law regime and then attempt to provide a non-discriminatory and efficient path forward that will save the law and economics movement from this embarrassing result.

1. The Theory: why economic analysis of law supports targeting.

As identified in the examples presented above, the current structure of tort law incentivizes potential tortfeasors to target disadvantaged groups. On its face, this targeting seems to be efficient. The optimal deterrence model uses tort law to induce companies to engage in behavior that minimizes the sum of costs of precautions and costs of accidents.[140] Generally, the resulting effect on companies' choices are positive: tort law incentivizes optimal care taking, product safety testing and other socially beneficial solutions that seek to avoid excessive accident costs. However, tort law also achieves all that by leading rational companies to choose among alternatives by determining which has the lowest potential *private* liability costs. If race and gender are accounted for when calculating damages, companies will target the "cheapest" race and gender—blacks and women, respectively. Recall the school bus example. For the manager of the school bus company, it is simply cheaper to have accidents involving black girls than accidents involving white boys.

It is important to clarify that this strategic, pre-decisional targeting does not have to be attributed to racist or sexist judges and juries. It is intrinsic to the current practice of calculating damages. Recall that even if courts apply the same standard of care when determining negligence, regardless of the potential victim's race or gender, the targeting incentive remains. For example, implementing a universal speed limit across all neighborhoods—regardless of whether predominantly black or white—will not eliminate the targeting incentives. It is the structure of the *compensation scheme* that encourages rational actors to disproportionately allocate harm among the least costly race or gender group.[141]

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[140] GUIDEO CALABRESI, THE COSTS OF ACCIDENTS (1972)

[141] Adjin-Tetty recognizes this distortion in incentives stating

> "The current system creates and reinforces the relative worth of human life and potential. It gives the impression that persons with favorable personal traits and/or socio-economic backgrounds are

At first blush most readers will find this discrimination appalling. However, the true analytical question at the heart of this issue is whether this targeting is socially undesirable. For adherents of the law and economics movement, the question collapses to a familiar one—is this targeting inefficient? After all, if some types of victims systematically receive lower damages in courts, why shouldn't tortfeasor target *them*? Surely, doing so will save (private) costs to the tortfeasors. Does it not save costs to society at large as well?

In other words, we must ask whether targeting the disadvantaged reduces social costs or just private costs. Many legal economists will perceive the higher liability costs as reflective of the higher value society places on high-income earners due to their higher productivity. For those legal economists, the private costs tortfeasors save reflect savings in social costs as well. Therefore, according to this view, targeting is efficient.

To best illustrate this perspective, let us start with an example. Suppose we are interested in knowing how much members of different groups would be willing to invest in its members' safety. It comes out that individuals in an advantaged group will be willing to invest more in safety than individuals in a disadvantaged group. Why? Because all else being equal, their future loss of income is higher, and therefore higher investments in precautions are cost justified.

To see this point more clearly, recall our school bus example. Imagine that two risk neutral children are identical in every way—additionally, their parents went to the same universities, live in the same neighborhood, hold the same job and are paid the same salary—except, one is a black girl and the other is a white boy. Consequently, the children's statistically predicted future incomes are not identical. Now imagine that both children are injured in the exact same manner.

The children's race and gender now impose a variance in their future loss of income. Assume that their non-income related losses (medical costs, pain and suffering, etc.) are equivalent at $1,000,000, however the children's future loss of income is determined to be $1,000,000 and $500,000 for the white boy and the black girl, respectively. Suppose their baseline risk of getting injured and losing, say, their leg, with a regular driver is 0.3%. They are now offered a better driver that will reduce their risk of injury to 0.2%. How much would they each rationally be willing to pay to switch? The white boy will pay up to $2,000. Why? Because this is his expected benefit from reducing the risk. Switching drivers reduces the risk by 0.1% (0.3%-0.2%), and when we multiply it by his expected total loss of $2,000,000, we get $2,000. In

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worth more than others, making it cheaper to injure persons in the latter category. *This undermines one of the central aims of tort law, that is, to create disincentives or deterrence for wrongdoing*."
Elizabeth Adjin-Tettey, *Replicating and perpetuating Inequalities in Personal Injury Claims Through Female-Specific Contingencies,* 49 MCGILL L.J. 309, 344 (2004) (emphasis added); *see also* Ariel Porat's discussion of a similar misalignment in tort law in the context of wealth, Ariel Porat, *Misalignments in Tort Law*, 121 YALE L.J. 82, 86 (2011).

contrast, the black girl will pay up to $1,500 because this is her expected benefit from the better driver. Thus, measured by their willingness-to-pay, the children (or their benevolent agent) will be willing to invest different amount on safety just because their future loss of income is different.

Courts, so goes the argument, should not incentivize tortfeasors to invest in precautions more than the potential victims themselves would have been willing to invest. That would be paternalistic and disrespectful of the victims' preferences, autonomy and, importantly, would not be welfare maximizing. Going back to our example, suppose that hiring a safer driver costs an extra $1,800. For the white boys, the costs are smaller than the expected benefit and therefore on pure costs-benefits grounds, switching is beneficial. In contrast, the black girls will be better off if they don't switch. It is not worth it for them to spend $1,800 in order to save expected costs of $1,500. They will prefer to keep the risky driver and receive instead, say, $1,600 in cash. The cash will not allow them to get the better driver, but will more than compensate them for their expected loss, enabling them to also satisfy some other needs, thus improving their total welfare.[142]

In sum, a policy which mandates equal safety for both groups is Pareto inferior to a policy which incentivizes differential safety while distributing cash to the disadvantaged group. As Kaplow and Shavell famously argued, tort law should be tuned to efficiency, and distribution to the disadvantaged groups should be done through the tax and transfer system.[143] This is roughly how an economic analysis of law would justify the current tort law regime and its targeting incentives.

And yet, there is a reason to think that most people even within the law and economics movement will find the fact that economic analysis of law supports targeting the disadvantaged

[142] Porat and Tabbach argue that wealthy people are willing to spend more than poor people on self-risk-reduction because they ascribe a higher value to their ability to consume their wealth during their lifetimes. However, since wealth is transferable, society should invest in those individuals equally when deciding to invest in rich or poor people's safety as society should consider social rather than private values. Therefore, the value of life should be determined irrespective of wealth. *See* Ariel Porat & Avraham Tabbach, *Willingness To Pay, Wealth, Death, and Damages*, 13 AM. L. ECON. REV. 45 (2011). Despite being correct, Porat and Tabbach's argument cannot save law and economics from the embarrassment. My claim is that tort law should also not consider *human capital* in determining optimal safety investments. Human capital, unlike existing monetary wealth, is not transferrable. Porat and Tabbach basically say that at age 70, there is no reason to take more care to protect Mark Zuckerberg's life than anyone else's because he's already created the wealth he has. If he dies, someone else will get it. But, at age 18 this is not the case. If he were to have died then, all that wealth would not have been created and the human capital that created that wealth would have disappeared. Therefore, law and economics will argue that, ceteris paribus, society ought to spend more resources to protect human capital that has greater value. Unlike the case of accumulated wealth, there is no corresponding positive externality to third parties when human capital dies.

[143] Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 677 (1994); Louis Kaplow, *On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy*, 18 J. OF ECON PERSPECTIVE 159-175 (2004).

embarrassing. In what follows I attempt to provide several possible outlets to save the law and economics movement from this embarrassment.

2. Saving Law and Economics from Embarrassment.

A. First Potential Outlet: Non-blended tables are Inherently Less Accurate than Blended Ones

Any attempt to quantify damages resulting from a tort is necessarily fraught with some degree of imprecision. Unsurprisingly, a number of factors suggest that the use of life expectancy, worklife expectancy, and wage tables in determining tort damages present serious limitations on accuracy.[144] Targeted and potent criticism has found its way into case law. Criticizing race-based stables specifically, in *Kimpson* Judge Weinstein commented that the current tables ignores the resiliency of individual children who rise to the top of their potential from very adverse conditions (a perspective urged by "Resiliency Theory).[145] In *McMillan*, Judge Weinstein criticized the use of race-based expectancy tables for ignoring disparities which are actually driven by socioeconomic differences, disparities which disappear altogether when socioeconomic factors are controlled.[146] Though I agree that the tables are flawed in this manner, the tables are plagued by more statistical errors—errors which have avoided scrutiny from other commentators. There are three glaring issues with using these tables. First, these tables are imprecisely measured, generally providing only the mean for a given population. Using a single statistic—the mean—to represent what really is a large distribution of different individuals, especially when the distribution might be a non-bell-shaped asymmetric distribution is problematic. Indeed, income is generally distributed according to a Pareto distribution, and age according to lognormal distribution, both are far from a bell-shape distribution.[147] A further problem might arise when the distributions for the different groups (men vs women, whites vs blacks) are skewed in the opposite direction, suggesting the group means are impacted by outliers. The second glaring issue is that these tables are based only on a snapshot of the world as it is today and thus ignore significant historical trends leading to convergence. Lastly, in as to individual outcomes, these society-wide data sets are actually *inherently* quite imprecise. In the next subsections I explain these points in more detail.

Imprecise Measurements

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[144] For now, I assume that accuracy in the determination of damages is a legitimate and important goal of tort law. I will discuss point below.

[145] *See G.M.M. ex rel. Hernandez-Adams v. Kimpson*, 13-CV-5059, 2015 WL 4572470, at *25 (E.D.N.Y. July 29, 2015); see also see also Marc A. Zimmerman, Editorial, *Resiliency Theory: A Strengths–Based Approach to Research and Practice for Adolescent Health*, 40 HEALTH EDUC. BEHAVIOR 381, 381 (2013)

[146] *McMillan v. City of New York*, 253 F.R.D. 247, 250 (E.D.N.Y. 2008) citing Audrey Smedley & Brian D. Smedley, *Race as Biology Is Fiction, Racism as a Social Problem is Real*, 60:1 Am. Psychologist 16, 22 (2005)

[147] Cite.

Ignoring Standard Errors.

Forensic models employ data sets with large standard deviations. This introduces a further degree of the models' imprecision. In fact, forensic economists' commonly offer a number of different scenarios in order to establish a high and low range of expected losses. This practice is likely a result of the large standard deviations with which they deal.[148] This section will begin with a discussion of imprecise data generally, as it refers to group means, and then attempt to quantify how the gender-specific pay tables result in systemic under-compensation for a large group of female tort victims in all three of the primary data sets used in the forensic models—life expectancy, worklife expectancy, and the wage tables.

One of the reasons courts are not aware of the imprecisions in the data is that the U.S. Life Tables (2008) published by the Center for Disease Control and Prevention in the U.S Department of Health and Human Services do not contain any estimates of variance or standard deviation.[149] As a result courts seem to believe the published means are a good estimate of the entire distribution. This is an incorrect assumption. Indeed various academic papers have made attempts to estimate the precision of life expectancy data. For example, according to Ciecka and Ciecka (included as table 1 in the appendix to this paper), the CDC table suggests that a 39 year-old men have on average 36 years left to live.[150] However, their calculated standard deviation of 14.1 suggests that most men, in fact about 2/3 of these men, really have between about 22 and 50 years left in their lives.[151]

Similar difficulties plague worklife expectancy data as well. The most updated data on worklife expectancy includes numerous, separate tables, which break down by gender and educational achievement.[152] Skoog, Ciecka and Krueger show that the worklife expectancy table's standard deviation is sometimes greater than both its estimated mean and median, especially for older individuals (included as Table 2 in the appendix).[153]

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[148] Kent Gilbreath, *Experiences From Two Decades: Some Practical Advice For Forensic Economists*, 1 LITIG. ECON. DIG. 2 (1996), http://Nafe.Net/Assets/Files/Resources/Ler_Articles/L1_2_4.Pdf.

[149] *See* ELIZABETH ARIAS, U.S. Life TABLES 2008, 61 NATIONAL VITAL STATISTICS REPORTS 12 (2012).

[150] HUGH RICHARDS & MICHAEL DONALDSON, LIFE AND WORKLIFE EXPECTANCIES (2010); CIECKA, JAMES AND PETER CIECKA, LIFE EXPECTANCY AND THE PROPERTIES OF SURVIVAL DATA, nafe.net/assets/files/resources/ler_articles/l1_2_3.pdf. Accessed 1/31/15.

[151] *See id.* at 26–7 (Table 1, "Additional Years of Life for Males and Females").

[152] Gary R. Skoog, James E. Ciecka & Kurt V. Kreuger, *The Markov Process Model of Labor Force Activity: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Error*s, 222 JOURNAL OF FORENSIC ECONOMICS 165–229 (2011).

[153] See Table 17, ("Characteristics for Initially Inactive Men with Bachelor's Degree,"). The other columns in the tables contain three measures of central tendency (mean or worklife expectancy, median, and mode), three measures of shape (standard deviation, skewness, and kurtosis), and four percentile points (10th , 25th , 75th , and 90th). Tables also contain bootstrap estimates of worklife and their standard errors. *See* Gary R. Skoog, James E. Ciecka & Kurt V. Kreuger, *The Markov Process Model of Labor Force Activity: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Errors*," 22(2) J. OF FORENSIC ECON. 165-229 (2011). Another distortion stems from the fact that the data for worklife tables only considers individuals that are initially active in the

Finally, although the Bureau of Labor Statistics separates wage data into nearly 1400 different occupations—offering wages for the 10th, 25th, 50th, 75th, and 90th percentiles for each[154]—large variances within the wage tables data are still problematic. This is particularly true for some occupations experiencing a large degree of variation in pay. In the legal occupation for example, the difference in pay between the 75th and 25th percentiles is actually greater than the median pay.[155] For almost all other major occupational groups, the difference between the 90th and 10th percentile is greater than the median pay.[156]

Thus, any model built upon such imprecise data ought to be considered with a great deal of skepticism. Using blended tables will reduce the variance. From a welfare perspective, to the extent that accurately compensating the victims is valuable, courts_might be better-off mis-compensating many people by a bit (when using blended tables), then to mis-compensating a fewer number of people by a lot (when using non-blended tables).[157]

Distributions Might be Skewed in Opposite Directions

The previous arguments dealt with what statisticians call the "second moment," i.e., the standard deviation of the distributions. To summarize, the argument contends that since the standard deviation for existing data compilations is large, the mean (what statisticians call the "first moment") is not the optimal statistic; it does not, by itself, describe the distribution well enough, thus mis-compensating substantial percentage of people. The more granulated the data is, the

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workforce. And, because those individuals cannot have a worklife expectancy of a negative number of years, it follows that the true mean worklife expectancy for the group is higher, and perhaps much higher, than indicated by the table.

[154] BUREAU OF LABOR STATISTICS, MAY 2012 NATIONAL OCCUPATIONAL EMPLOYMENT AND WAGE ESTIMATES UNITED STATES, http://www.bls.gov/oes/current/oes_nat.htm.

[155] BUREAU OF LABOR STATISTICS, OCCUPATIONAL EMPLOYMENT AND WAGES IN 2014 (2015), http://www.bls.gov/opub/ted/2015/occupational-employment-wages-2014.htm

[156] See Bureau of Labor Statistics, U.S. Department of Labor, *The Economics Daily*, Occupational employment and wages in 2014 on the Internet at http://www.bls.gov/opub/ted/2015/occupational-employment-wages-2014.htm (visited *August 10, 2015*). Annual Income for the 90th percentile of the nation's approximately 20,000 astronomers and physicists is $174,630 while annual income for the 10th percentile is $56,070—a difference of $118,560, an amount greater than the median of $106,360 or the mean of $112,900. This element of imprecision may actually be greater in the case of children when the models might make use of just an average salary across all occupations. Across all occupations, the 90th percentile is $86,810 and the 10th percentile is $18,090 – a difference of $68,720, a figure that greatly exceeds the mean of $45,790 and the median of $34,750. Bureau of Labor Statistics, U.S. Dep't of Labor, *Occupational Outlook Handbook, 2014-15 Edition*, Physicists and Astronomers, http://www.bls.gov/ooh/life-physical-and-social-science/physicists-and-astronomers.htm (visited *May 22, 2015*).

[157] Further inaccuracies at the individual level might happen because courts routinely make use of tables which are in some way mismatched between their intended use in policy making and their actual use in courts. See Sonja B. Starr, *Evidence-Based Sentencing and the Scientific Rationalization of Discrimination*, 66 STAN L. REV Vol. 66 (discussing discrepancies between "prediction intervals" for an individual forecast and "confidence intervals," which are estimated for the group mean or for the effect of a given variable, in the context of predicting criminal recidivism.)

larger the standard error, and therefore courts might miss the mark by more when they use non-blended tables.

Now I turn to the "third moment" of the distribution, which measures a distribution's asymmetry, its skewness. As the next figure shows, distributions can be symmetric, where the mean, the mode, and the median converge. But they can also be asymmetric in which case these three statistics do not converge. If the distribution of the advantaged groups is positively skewed and that of the disadvantaged group is negatively skewed, then it is possible that the difference between the means of the distributions, even if statistically significant, is driven by the individuals at the tail ends of the wage, worklife or longevity curves. If we eliminate the tails it is possible that the difference between the groups' means will disappear, which would then justify treating the two groups as one.

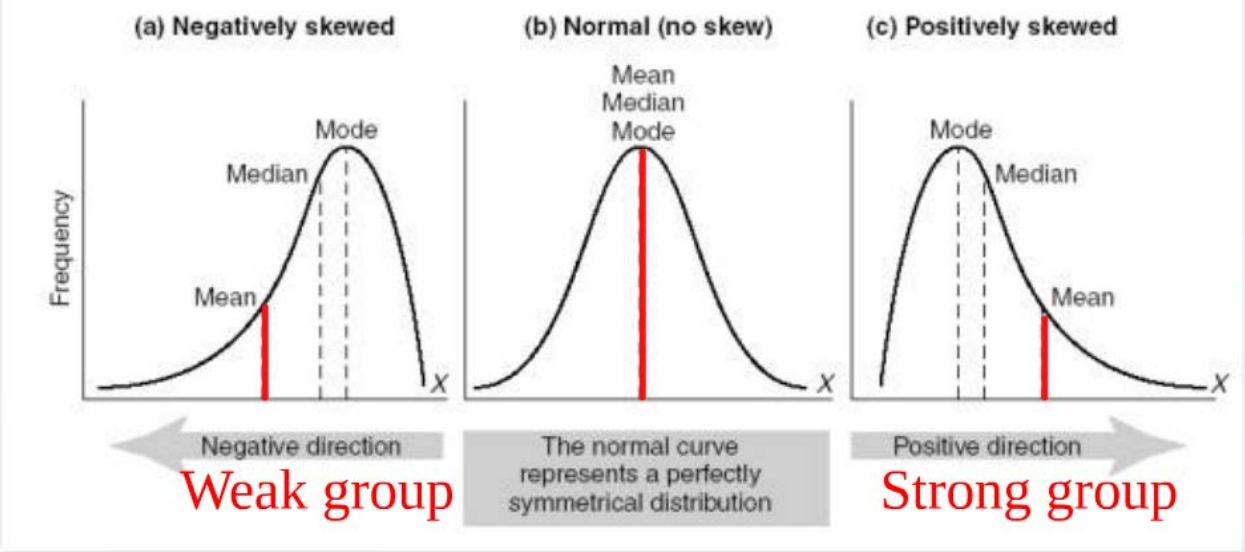

Exhibit 1: Long-tail versus Normal Distributions

The normative justification for eliminating the tails is that it make little sense to let people at the tails of the distribution determine the destiny of the entire group. After all, courts are attempting to predict what would be the long run losses of a child, with a level of confidence of more likely than not. In fact, if courts have to choose one statistic to reflect the entire distribution they perhaps should choose the mode, which reflects the salary earned (life expectancy or worklife expectancy) by the largest number of people, or the median which reflects the salary (longevity or years at work) that at least 50 percent of the population will achieve. As Exhibit 1 shows, when the distributions face away from each other, the distance between the medians and the modes is smaller than the difference between the means. It is theoretically possible that these

differences are not statistically significant even when the difference between the means is statistically significant. Where that is the case, these two groups should be treated as one.

To see the efficiency loss when courts use the mean in skewed distributions, consider a stylized case where a group consists of 99 people whose expected harm is $1,000 and 1 person whose expected harm is $101,000. Thus, in this group of 100 people, the expected harm per person is $2,000. If courts always award damages equal to the expected harm of $2,000, tortfeasors' incentives to take due care will be distorted. They will overspend in 99% of the cases (spending up to $2,000 when they should have spent only up to $1,000) and underspending in 1% of cases. If, by contrast, courts would have awarded damages equal to the median or the mode expected harm of $1,000, tortfeasors would have had incentives to efficiently invest in care in 99% of the cases.

Again, back of the envelope calculations can demonstrate the extent to which this problem rears its head in real life situations. As Exhibit 1 shows, the problem arises when the mean is larger than the median for the advantaged group and smaller than the median for the disadvantage group. Does our data suggest these problems are real? We start with the longevity data. Table 1 in the appendix shows that for women, the mean across all ages is always smaller than the median. However, for men, the mean is larger than the median only for men 64 years old and older. Switching to worklife data, Table 2 in the appendix suggests that for men and women between 20 and their mid to late 40s the mean is always smaller than the median, and above 40, is always bigger. As to the wage data, Table 4 shows that for both men and women the mean weekly earnings is larger than the median. In sum, while a more granulated data and analysis is needed, a first-cut back of the envelope calculations suggest that the problem of skewness cannot in general justify treating both men and women as one. It is still possible however that analysis of data on differences between blacks and white will reveal the problem exists in practice.[158]

Data Tables Capture Only a Snapshot in Time

Another concern regarding the use of life expectancy, worklife expectancy, and wage tables in determining tort damages relates to the fact that these tables look only at the world as it stands at a single point in time. Judge Weinstein recently highlighted this problem in *Kimpson* and *McMillan*, arguing that race- and ethnicity-based statistics assume that the status-quo will continue in the future despite ongoing legal and intuitional efforts to fight discrimination in areas like the workplace,[159] and tables relying on archaic notions of race fail to account for the nuanced reality of racial heritage in the country today.[160]

[158] Analyze data.
[159] See *G.M.M. ex rel. Hernandez-Adams v. Kimpson*, 13-CV-5059, 2015 WL 4572470, at *24 (E.D.N.Y. July 29, 2015).
[160] *McMillan v. City of New York*, 253 F.R.D. 247, 251 (E.D.N.Y. 2008).

Predictions about the future based on these data sources necessarily introduce a systematic additional amount of inaccuracy into the models, leading to inefficient incentives for tortfeasors. Three examples of this type of limitation are changing trends in life expectancy, workforce participation, and academic achievement.

Life Expectancy

Life expectancy for men is increasing at a much faster pace than for women.[161] For example, in Britain, where records have been kept back to the 1840s, the difference in life expectancy peaked in 1967 and has been in a relatively steep decline ever since.[162] A group of expert actuaries and scientists backed by British insurer Legal & General, studied the root of this trend and found that lifestyle choices such as consumption of tobacco and alcohol account for much of the difference in life expectancies.[163] Writing about Europe as a whole, the panel found that deaths related to smoking "accounted for 40-60% of the gender gap," a trend that now appears to be in reverse as men, a much larger smoking population to begin with, are abandoning their smoking habits at a greater rate than women. In 1840s Britain, the life expectancy gap was a mere 9 months—suggesting that the current trends of a decreasing gap may continue for some time into the future.

Workforce Participation

Another trend supporting the use of blended tables is the changing gender demographics of the American workforce. The gender gap in estimated damages models are, at least in part, because women, on average, are less likely to participate in the workforce.[164]

However, the current trend of an increasingly female labor force diminishes forensic models' accuracy because (1) the trend looks likely to continue at least for some time into the future and

[161] For example, "From 1989 to 2009, life expectancy [at birth] for men improved by 4.6 years on average but only by 2.7 years for women. And throughout the country, women were more likely than men to have no progress in life expectancy or to have their lifespans get shorter over time." *See Girls born in 2009 will live shorter lives than their mothers in hundreds of US counties*, INSTITUTE FOR HEALTH METRICS AND EVALUATION (2012), available at http://www.healthmetricsandevaluation.org /news-events/news-release/girls-born-2009-will-live-shorter-lives-their-mothers-hundreds-us-counties#/overview.

[162] *Lifespan and the Sexes: Catching Up*, ECONOMIST, Jan. 1, 2013, available at http://www.economist.com/news/science-and-technology/21569362-rich-world-men-are-closing-longevity-gap-women-catching-up.

[163] LIFE EXPECTANCY: PAST AND FUTURE VARIATIONS BY GENDER IN ENGLAND AND WALES, LONGEVITY SCIENCE ADVISORY PANEL 20 (2012), http:// www.longevitypanel.co.uk/_files/life-expectancy-by-gender.pdf.

[164] For example, the Bureau of Labor Statistics worklife estimate, last updated in 1986, suggested that a 40 year-old male would have an estimated worklife expectancy of 20 years while a woman the same age would only be predicted to work 14.3 more years—a difference of nearly 40 percent. Today, an employed 40-year-old woman with a bachelor's degree is predicted to have a remaining worklife of 21.78 years. *See* Gary R. Skoog, James E. Ciecka, & Kurt V. Kreuger, *The Markov Process Model of Labor Force Activity: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Errors*, 22 J. OF FORENSIC ECON. 165–229 (2011).

(2) because of the trend also correlates with an increase women's income. In fact Labor Force Participation Rate for men has steadily decreased for the last five decades while for women it appears to have only recently peaked.[165]

One result of this is that proportionately, women are better represented in younger segments of the workforce. Since a worker's earnings are thought to reach their maximum around age 40,[166] if current Labor Force Participation Rate trends continue, women will likely also realize larger increases in income over their worklife than past generations have experienced. Furthermore, from the fact that companies are enacting policies that allow female employees who choose to have children more flexibility in returning to work, it reasons that less female employees will leave the workforce after giving birth. This trend seems especially likely when current trends in educational attainment are also considered. This increase in the longevity of some female workers will allow more women to reach higher levels of income, which in turn will buoy the average income of all women.

Relative Academic Achievement

The wage tables used in the forensic models are susceptible to similar inaccuracies stemming from a failure to account for developing academic achievement trends. Numerous studies have documented the association between education and increased earning power.[167] In fact, for every 100 female college graduates, there are now only 73 male graduates[168] and a corresponding adjustment in earning power for women vis-à-vis men may already be apparent.[169] While, across all age demographics, women earn on average about 80 percent as much as men, unmarried women under 30 without children earn significantly more than their male counterparts. In some major cities—such as New York, Memphis, and Atlanta—this difference may even be in the 15 to 20 percent range. Similarly, the Bureau of Labor Statistics recently announced that, "for the first time, women made up the majority of the workforce in highly paid managerial positions."[170]

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[165] Conor Sen, *Why Is the Labor Force Shrinking? Blame Young Men, Not the Economy*, THE ATLANTIC, (Oct. 9, 2012), *available at* http://www.theatlantic.com/business/archive/2012/10/why-is-the-labor-force-shrinking-blame-young-men-not-the-economy/263368/.

[166] Katie Bardaro, *Pay Goes Nowhere After 40*, PAYSCALE, Apr. 4, 2011, *available at* http://www.payscale.com /career-news/2011/03/pay-goes-nowhere-after-40.

[167] ANTHONY P. CARNEVALE, STEPHEN J. ROSE, & BAN CHEAH, THE COLLEGE PAYOFF EDUCATION, OCCUPATIONS, LIFETIME EARNINGS, THE GEORGETOWN UNIVERSITY CENTER ON EDUCATION and the Workforce, *available at* https://cew.georgetown.edu/report/the-college-payoff/; INCOME OF YOUNG ADULTS, NATIONAL CENTER FOR EDUCATION STATISTICS, *available at* http://nces.ed.gov /fastfacts/display.asp?id=77; EARNINGS AND UNEMPLOYMENT RATES BY EDUCATIONAL ATTAINMENT, BUREAU OF LABOR STATISTICS (2013), *available at* http://www.bls.gov/emp/ep_chart_001.htm.

[168] Cate Doty, *Addressing the Gender Gap in College Aspirations*, N.Y. TIMES, Oct. 23, 2009, *available at* http://thechoice.blogs.nytimes.com/2009/10/23/addressing-the-gender-gap-in-colleges/?_r=0.

[169] Belinda Luscombe, *Workplace Salaries: At Last, Women on Top*, TIME, Sept. 1, 2010, *available at* http://content.time.com/time/business/article/0,8599,2015274,00.html.

[170] *Id.*

Since, individuals with a Bachelor's degree make (over their lifetime) 84% more than those with only a high school diploma, it follows that changes in the relative educational achievement of women would improve the earning power of women relative to men. [171]

In short, the data sets forensic economists use when creating models that estimate tort damages only view that data at a single instance in time. However, in a dynamic and ever-changing world, this approach does not account for such fluidity and introduces a number of inaccuracies into these models which systematically distorts tortfeasors incentives.

B. Second Potential Outlet: Existing Discrepancies Between Groups are a Result of Market Failures that Require a Fix

The previous section argued that courts use tables which are inaccurate in a systematic way and therefore inadequate because they distort tortfeasors' incentives. In this section I argue that this practice also distorts victims' incentives in an important way because the various gaps between the groups stem from systematic market discrimination. For example it is well known that employers place value on job attachment. Yet, historically, women have had lower job market attachment than men. There could be several, non-mutually exclusive reasons for this phenomenon. In one case, their job attachment may be low because of employer discrimination, either direct such as when employers prefer to fire women or blacks first and then men and whites,[172] or indirect such as when a while male-dominated workplace is hostile towards women or blacks, causing women or blacks to quit their jobs, or miss out important bonding opportunities essential to advancement. Alternatively, job attachment may be low due to choices some female employees make: women may prefer to be involved directly in child-rearing, and workplace policies governing employee ascension may not allow those employees to contribute at a level satisfactory to employers while providing the flexibility mothers need to raise children.

In either of these indirect cases, employers may rationally prefer hiring white male over identical blacks or female candidates because probabilistically speaking, there are higher profits from hiring a white man because the return on job-specific training is higher. The question is whether this rational discrimination by employers socially inefficient, and if so, why?

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[171] *Supra* note 154.

[172] Kenneth A. Couch & Robert Fairlie, *Last Hired, First Fired? Black-White Unemployment and the Business Cycle*, 47 DEMOGRAPHY 227 (2010); James S. Rogers, Last Hired, First Fired Layoffs and Title VII, 3 Harv. L. Rev (1975) pp 1544-1570. See also Guthrie v. Colonial Bakery Co., **6** Fair Empl. Prac. Cas. **662** (N.D. Ga. I973) (women laid off while men allowed to continue working during restructuring)

It so happens that the answer is that such discrimination is inefficient and the reasons are myriad. First, the inefficiency may arise from the self-perpetuating nature of this cycle of thinking. If employers (i) are less likely to employ women in jobs that require job attachment, (ii) fail to offer workplace initiatives to create more comfortable workplaces for women, or (iii) inadequately balance the needs of women who choose to rear children by failing to institute workplace initiatives designed at improving retention of those employees, than some, if not many, women may respond rationally by getting more involved in child-rearing than men, thus, becoming less likely to acquire the skills necessary to perform well in those jobs, thereby confirming erroneously the belief that employers hold regarding job market attachment. In this case, beliefs are self-confirming. The same thinking can be applied to black employees.[173] Assuming female and black employees' inherent and unchanging preferences are not driving this assumption on part of employers, this is inefficient at the societal level because women, the disadvantaged group, could yield higher profits for their employers if common employment practices within the labor market were not discriminatory and beliefs were not asymmetric across groups to begin with.[174]

Since this discrimination is socially undesirable, the argument goes, courts should implicitly correct for the market failures stemming from sexist (or racist) practices as well as from asymmetric beliefs across groups by ignoring those wage gaps. Accordingly, tort law should award loss of future income based on a hypothetical non-discriminatory efficient markets.

One may argue that the difficulty with this argument in the context of this paper is that it is harder to believe that victims', especially children's (or their benevolent agent's) incentives to invest in developing their human capital will really be impacted because courts use non-blended tables in tort cases. Whereas almost everyone seeks a job, only very few face accidents. Thus, it is easier to see how job market imperfections might lead to distorted incentives for young adults from disadvantaged groups towards investing in their human capital. Since accidents, such as a bus driver caused crash, are so rare, and especially when we discus children, the broad principle that tort law discriminatory practices leads to inefficient investment in one's human capital is a harder sale. The answer to this argument is that even if young adults from disadvantaged groups will not alter their incentives to invest in their human capital, they still might be deterred from participating in dangerous jobs knowing that their employers might have diluted incentives to protect them from safety hazards. And that of course, is a welfare loss.

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[173] If employers fail to offer mentorship opportunities for black employees and policies which encourage bonding with black employees, the same self-confirming pattern emerges. For example, some black employees have reported feeling alienated by golf outings, a sport which often has high front end-costs and is more popular with higher income individuals. *See* David A. Thomas and Suzy Wetlaufer, *A Question of Color: A Debate on Race in the U.S. Workplace*, HARV. BUS. REV., Sept-Oct. 1997, available at https://hbr.org/1997/09/a-debate-on-race-in-the-us-workplace

[174] ANDREA MORO, STATISTICAL DISCRIMINATION, THE NEW PALGRAVE DISCRETIONARY OF ECONOMICS (Steven N. Duralauf and Lawrence E. Blume, Eds, Online Edition, 2009).

C. Third Potential Outlet: Private Law Should Not Always be Free of Distributive Justice Concerns

Another potential outlet through which law and economics scholars could avoid the embarrassment associated with discriminatory targeting practices is to incorporate the notion of equality into the social welfare function. Kaplow and Shavell have theorized that principles of fairness, specifically distributive justice principles, may be incorporated into social welfare analysis as individuals may well have preferences for equality, and those preferences affect their well-being just like their preference for art, nature or fine wine.[175] The question then becomes how exactly we should account for equality in the social welfare function, and at what cost. One way of accounting for equality is to give equality lexical priority over efficiency. Accordingly, one may argue that ultimately, the principle of *restitutio ad integrum*, (even though it is in Latin…), cannot be normatively superior to the principle that all people are created equal. Simply put: No one deserves to be targeted because of race or gender. The school bus example was designed to demonstrate our distaste for ex-post differential treatment, but also our distaste for the distorted ex-ante incentives to take care. The example is troubling because it *feels unfair to pay* lower damages to victims belonging to disadvantaged groups, but also because it *feels unfair to allocate* buses and drivers in such a way that targets those groups to begin with. We are troubled by these decisions because it under-protects individuals who are equally worthy of society's protection. Since measuring damages based on non-blended statistical tables creates this distortion, society should measure people's harm in a different way. The unequal incentives to take care provided by current tort practice are problematic for a society committed to equality. Cost-benefit analysis, so goes that argument, should start only after the commitment to strict equality has been established. Thus, society should not abandon the commitment to equality and allow women and minorities to be "targeted," but rather abandon the purportedly accurate statistical application of *Restitutio ad integrum* for a less accurate statistical application that recognizes the priority value society places on equality.

One of the problems with this potential outlet is that it is unlikely that proponents of these arguments believe that notions of equality should *always* trump efficiency, no matter what the costs to society are. Indeed, most people do not have lexical priority for equality. More likely, they believe in some tradeoff between equality and the costs to society from the "inefficiencies" involved in having an egalitarian damages rule. Thus, a moderated version of the argument advances the position that while preferences for equality should be part of the social welfare function, they should not be considered lexically prior to efficiency. Rather, they should be given some weight. Since policymakers need to maximize welfare and not just wealth, and because welfare includes people's preference for equality, policymakers should account for

[175] Louis Kaplow & Steven Shavell, *Fairness versus Welfare: Notes on the Pareto Principle, Preferences, and Distributive Justice*, 32 J. LEGAL STUD. 331, 336, 352 (2003). The authors argue that policy assessment should be based exclusively on well-being (including the impact of equality on well-being) but that no weight should be accorded to independent notions of fairness. *Id.* at 360.

equality, but only in as much as it affects people's well-being. Accordingly, since most people have preferences that are non-discriminatory, at least to some extent, economic analysis of law should support non-discriminatory policies—at least as long as such policies are not too costly.[176]

There are a few problems with this argument. First, it is not clear what should be done when people's other-regarding preferences are racist or sexist, as still is the case in many societies.[177] Second, proponents of this line of argument never tell us in what way equality and efficiency should be traded against each other. They never tell us what their relative weight should be. Indeed, these two notions are not subject to a compatible system of measurement and therefore hard to balance.

Be that as it may, it is clear that to do *any* balance one needs to explore what the costs involved in targeting the cheaper, disadvantaged groups really are. For law and economics scholars, this entails an investigation of the ex-ante incentives a legal regime provides to potential tortfeasors. There are two types of ex-ante incentives one can analyze. First, ex-ante incentives stemming from the fact that ex-post damages are evaluated more "accurately" by courts, i.e., by using non-blended tables. To concretize this idea, we start with the classic example, a la Kaplow, where potential tortfeasors cannot anticipate in advance the value of the losses they create (imagine a driver driving in a new place not knowing what to expect of his potential victims.) Here, requiring the court to award accurate damages, thus incentivizing greater precision ex-post, is a social waste because that information cannot improve the level of care tortfeasors already chose to undertake.[178] Accordingly, courts should award "inaccurate", or average, damages, thus saving on litigation costs.

The opposite effect arises when potential drivers *can* anticipate, and thus affect, whether their accidents will involve a "low-valued" victim, such as when routing trips through predominantly black neighborhoods. If, in the latter case, the ex-post damage award reflects the magnitude of the actual loss caused, future care-level or activity level decisions will be adjusted

[176] See Ariel Porat, *Misalignments*, supra note 141 at 121 ("I cannot see how the efficiency goal would be frustrated if society were to ascribe identical value to the lives and limbs of all its members").

[177] Interestingly, both economists and egalitarians agree such preferences should be excluded. John Harsanyi, a Nobel Laurette in economics, argued such preferences should be excluded from the social welfare function. JOHN C. HARSANYI, RATIONAL BEHAVIOR AND BARGAINING EQUILIBRIUM IN GAMES AND SOCIAL SITUATIONS 62 (1977). So did Ronald Dworkin, a political philosopher. RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 234 (1977). A complete treatment of the problem of external preferences is beyond the scope of this article.

[178] Louis Kaplow, The Value of *Accuracy in Adjudication*: *An Economic Analysis*, 23 J. OF LEGAL STUD. 307, 314 (1994).

accordingly.[179] Kaplow's classic framework asks us to consider whether a change in behavior on account of accuracy is "sufficiently desirable to justify the cost of greater accuracy."[180]

Since the statistical tables are provided by the government at no cost, the use of race- and gender-based statistical tables is basically free. Therefore, according to Kaplow's framework, greater accuracy should be always desirable as it incentivizes the potential tortfeasor to make decisions that minimize his potential damages. This result is also considered *socially* desirable because, under Kaplow's framework, the damages the tortfeasor pays equals the social harm he created. By minimizing the amount of damages paid, the tortfeasor also minimizes the social harm she causes. Targeting is not only not problematic, it is rather desirable.

But for societies which put some weight on equality in their social welfare function, a tortfeasor's damages liability does not necessarily equal the social harm the tortfeaser caused. In such societies reducing the tortfeasor's damages when the tortfeaser harms blacks or women, instead of whites or men, does *not* reflect the collective value society places on the social harm caused. For them, the social harm is the same in all cases. Therefore, greater accuracy, even if costless, is not valuable in such societies as it does not really save social costs, but only shifts them, regressively, to blacks and women.[181]

Proponents of accurate tables will further argue that even if one accepts that equality matters to the social welfare function, as well as the extent at which it matters, it is still not clear society should worry about inequality between groups in the rare context of injury or death. Rather, society should reduce inequality between groups in effective, fiscal ways within relevant distributive justice institutions (i.e. the tax and transfer system). Tort law, the argument goes, should therefore still be geared only towards efficiency, compensating victims according to their real harm. Put differently, tweaking tort law to fix problems of discrimination is like fixing a dent in a car with a broken engine: it would not really solve the problem of discrimination in society.

Indeed, reams of legal analysis have been devoted to the question of whether private law should be geared towards efficiency only or whether it should take distributive justice concerns into

[179] *Id*. at 315.
[180] *Id*.
[181] A related argument emerges when one considers tortfeasors' incentive to invest in *learning* about their potential victim's "value". As Kaplow demonstrated, a potential tortfeasor's incentive to invest in learning about their potential victim's value (as reflected by courts) will depend on the degree of accuracy courts will employ in determining damages. *Id.* at 316. A sufficient incentive exists where the tortfeasor's potential gains exceed the cost of the information. Put differently, in Kaplow's framework, information about the ex-post loss is valuable only if it is reflected in the court's ex-post awards. But those who care about equality would not necessarily want the potential tortfeasor to invest in learning where the "low value" victims (as measured by courts) are, which is to say that they do not want tortfeasors to learn where the disadvantaged victims are—because they believe targeting would result in social waste. Thus, for them, blended tables are superior.

account.[182] As Kaplow and Shavell famously argued, for every distribution done via private law, there is an alternative legal regime where private law is geared towards efficiency and distribution is done via the tax and transfer system, which leaves everyone better off.[183]

In contrast, Kyle Logue and I have described conditions at which private law can be more efficient, "on the ground", than the tax and transfer system to distribute wealth.[184] Indeed, even if theoretically it is correct that distribution via the tax and transfer system is more efficient than via the private law, in reality distribution via the tax and transfer system is subject to distortions and market failures of its own. Thus, on the ground, it is often better to distribute via private law. Kyle Logue, David Fortus and I have analogized this problem to the problem of developing a fast aircraft: "whereas it is theoretically possible to approach the speed of light, the practical difficulties involved in actually implementing this theoretical possibility prohibits the creation of super high-speed spacecraft. [And yet,] no one argues that we should stop building slow yet practical spacecraft because for every such spaceship, there is an alternative, albeit purely theoretical, design that would travel faster."[185]

In sum, according to this outlet, as long as enough people have a preference for egalitarian damage awards that is independent of the actual effects of such legal rule, it might be efficient to take equality into account in tort law's practice of awarding damages.

Rule Utilitarianism

The idea in Rule Utilitarianism (to distinguish from the conventional Act Utilitarianism) is that following rules that tend to lead to the greatest good will have better consequences overall than allowing exceptions to be made in individual instances, even if better consequences can be demonstrated in those instances. Rule Utilitarianism certainly provides stability versus Act Utilitarianism; most of us would not prefer to live in a society where each decision is made by endless, robotic cost-benefit analyses, but rather in a society where general efficient rules are always enforced, even if in some rare cases they generate undesirable outcomes. Why? Because history and common sense teaches us that this is an inferior society to be in. A rule against murdering is an efficient rule even if by murdering one, society can save five. Indeed, too much of Act Utilitarianism would lead to a continuous pattern of targeting disadvantaged groups,

[182] Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 677 (1994); Ronen Avraham, David Fortus, & Kyle Logue, *Revisiting the Roles of Legal Rules and Tax Rules in Income Redistribution: A Response to Kaplow & Shavell*, 89 IOWA L. REV 1125 (2004); Chris Sanchirico, *Taxes Versus Legal Rules as Instruments for Equity: A More Equitable View*, 29 J. Legal Stud. 797 (2000); Chris Sanchirico, *Deconstructing the New Efficiency Rationale*, 86 CORNELL L. REV. 1003 (2001); Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653 (1998); Tsachi Keren-Paz, Tolis, Egalitarianism and Distributive Justice (Ashgate, 2007).
[183] Louis Kaplow & Steven Shavell, Why the Legal System is Less Efficient Than the Income Tax in Redistributing Income, 23 J. LEGAL STUD. 667, 667 (1994)
[184] Avraham, Fortus, & Logue, *supra* note 182.
[185] *Id* at 154.

which in turn will lead to negative external effects outside the rational actor's rational decision to target the group.

Rule Utilitarianism provides a potential outlet to the targeting problem in tort law because it suggests that not targeting the disadvantaged may be overall beneficial even if in a given case it can be demonstrated that it is not. Of course, Rule Utilitarians will have to demonstrate how exactly eliminating the use of non-blended tables improves welfare in the long run, but this seems like a possible endeavor.

To see why this is possible observe the similarity between the problem at hand and the famous trolley problem. How would we like our company manger to train his drivers in cases similar to the "Trolley Problem"?[186] The manager may brief his drivers that if the driver's breaks malfunction and they have to run over a child, and if there is a white male on the right and a black female on the left, they should avoid the former. For a simple Act Utilitarian, the driver should take the path towards the individual that has the lowest cost: this would be killing the one person standing on the track versus five in the original trolley problem,[187] or the black girl in our example versus a white boy. One of the classic solutions to the classic trolley problem is a Rule Utilitarianism solution: one shouldn't take an affirmative action to save others from inevitable harm if that means harming another innocent life, as the violation of such a rule would degrade the moral significance of the individual and the individual's associated rights.[188] For a Rule Utilitarians the answer will be that the driver needs to randomize between the children. Targeting the black girl might undermine social cohesion in a manner that would create a greater loss in future wealth than would be gained by an optimal tailoring of the driving rules now. Rule Utilitarianism entails that adherence to the conductor's code of not always targeting the blacks or the women, is necessary for bringing about the greatest happiness for the greatest number of people.

3. Summary

Any compensatory tort scheme that statistically accounts for race and gender will encourage rational actors to make choices that disadvantage individuals in demographics that warrant lower

[186] Originally proposed by Phillippa Foot, the basic "Trolley Problem" asks whether one, in the position of a conductor in control of a trolley with failed breaks heading towards five men, would use a spur on the track to avoid the five men but kill one man standing on the spur. *See* P. Foot, THE PROBLEM OF ABORTION AND THE DOCTRINE OF THE DOUBLE EFFECT, IN VIRTUES AND VICES AND OTHER ESSAYS IN MORAL PHILOSOPHY 19 (1978). Commentators have offered variations to the problem. One of the more popular takes on the problem is to change the position of the decision-maker from a conductor to a viewer who has the option of stopping the trolley heading for the five men by pushing a fat man off the bridge. *See* Judith J. Thompson, The Trolley Problem, 94 Yale L. J., 1395, 1403. Another variation puts the listener in the position of a surgeon tasked with decision of killing one person with healthy organs to save five people with failing organs. *See id.* at 1396.

[187] *See id.*

[188] *See* BARBARA MACKINNON, ETHICS: THEORY AND CONTEMPORARY ISSUES 37–9 (2012)

tort liability costs. In practicality, this means that the tort system not only perpetuates race and gender discrimination by relying on historical data, but also pushes discrimination into the future by providing potential tortfeasors with perverse ex-ante incentives.

My ambition for this section was to demonstrate that economic analysis of law should not only support blended tables because, even when considering notions of equality, blended tables are welfare maximizing, but rather to show the possibility that blended tables are efficient *from within,* and not just when balanced against external values.

When viewed as an attempt to make tort law more efficient (and not just to solve problems of discrimination), the call to change the way damages are calculated is not any different from the hundreds of other research articles written within the law and economics tradition that attempt to increase the efficiency of tort law by suggesting tweaks to existing doctrines. Thus, my goal is not to engage in the debate about the classic tradeoff between efficiency and fairness. Rather my goal is to make tort law both more efficient and equal at the same time.

Indeed, in comparing tort law's approach to valuing injuries with the approach taken by agencies doing cost-benefit analyses, the differences become apparent. For example, in the environmental area, uniform monetary figures are placed on different injuries (and a uniform cost for lost life), irrespective of the actual loss. This rule-like approach, which utilizes very little ad-hoc information, would be quite efficient in adjudication. Agencies using cost-benefit analysis, are far more effective in affecting accident prevention than tort law. Similarly, various highway safety related decisions are made both by courts adjudicating tort cases and by agencies in building and repairing highways, inspecting automobiles, setting speed limits, etc. But whereas tort law attempts to use a more "accurate" compensation methodology, the other uses simple uniform charts.

Perhaps closer to home, uniform tables are also used by insurers in their roles as private regulators of safety. For example, experience rating formulas for setting third-party liability premiums in car insurance take into account past accidents, but not whether the driver injured a man or a woman, a black individual or a white one. The increased premium is blind to this factor. The same car accident that generates gender- and race-based damage awards, is priced in advance by private insurance companies as if the damage award were gender- and race-neutral. Courts should use only blended tables.

V. DISCRIMINATORY DAMAGE CALCULATION IN FEDERAL LAWS

The discussion so far has focused on tort law, which is based on common law. Yet, surprisingly, courts consider race and gender even when calculating the damages given to plaintiffs suffering from violations of *federal* law. And not just in any federal law but in some of our most progressive statutory frameworks: Title VII, Americans With Disability Act, and The National

Childhood Vaccine Injury Act. In such cases, one would expect that the unconstitutionality of this practice could be easily demonstrated in court because the constitution is easily applicable. And yet, courts routinely ignore the constitution and its values when awarding damages to victims protected by these law.

A. TITLE VII

The most ironic race- and gender-based damage award calculations occur in Title VII cases. Title VII is the statutory cause of action for workers suffering discrimination in the work place due to their race, color, religion, sex, or national origin.[189] In landmark case law, the Supreme Court held that Title VII prohibits employers from requiring female employees to make higher contributions to their retirement fund—regardless of the employer's use of mortality tables to construct and support the policy.[190] In *Manhart*, the employer used mortality tables to determine that female employees live longer than male employees, therefore concluding that pension costs are higher for retired females because more payments would have to be made to the women.[191] The *Manhart* court noted that "[a]ctuarial studies could unquestionably identify differences in life expectancy based on race or national origin, as well as sex . . . . [b]ut [the] statute was designed to make race irrelevant in the employment market . . . ."[192] Shortly after, in *Norris*, the Court similarly held that women should not receive lower retirement benefits on the basis of their increased longevity.[193] The Court held that "[e]ven a true generalization about [a] class cannot justify class-based treatment."[194]

Despite these rulings, courts have allowed gender to factor into damages calculations in employment discrimination cases. While the preferred remedy in employment discrimination cases is that the employee be reinstated, Title VII and the Civil Rights Act of 1991 provides plaintiffs suffering from employment discrimination with the ability to receive compensatory damages where reinstatement "is not viable."[195] The "make whole" rationale is at the heart of compensatory damages awards, which require "that persons aggrieved by the consequences and

[189] Title VII of the Civil Rights Act of 1964, § 703, Pub. L. 88-352, codified at 42 U.S.C. 2000e-2 (2006).
[190] *LA Department of Water & Power v. Manhart*, 435 U.S. 702 (1978).
[191] *Id.*
[192] *Id.* at 709. The Court noted the case [did] not involve a fictional difference between men and women. It involve[s] a generalization that the parties accept as unquestionably true: Women, as a class, do live longer than men. The Department treated its women employees differently from its men employees because the two classes are in fact different. It is equally true, however, that all individuals in the respective classes do not share the characteristic that differentiates the average class representatives. Many women do not live as long as the average man and many men outlive the average woman. *Id.* at 707–08.
[193] *Arizona Governing Committee for Tax Deferred Annuity and Deferred Compensation Plans, et al., v. Norris,* 463 U.S. 1073, (1983).
[194] *Id.* At 1084
[195] *Pollard v. E.I. du Pont de Nemours & Co.*, 532 U.S. 843, 846 (2001); 42 U.S.C. § 1981a (2012).

effects of the unlawful employment practice be, so far as possible, restored to a position where they would have been were it not for the unlawful discrimination."[196] Both back pay and front pay (considered to be equitable remedies decided by judges, not by juries) are appropriate to make plaintiffs whole in discrimination cases.[197]

Although race and gender-based compensatory damage awards in the Title VII context seem at odds with the statute's purpose, there is evidence that courts are permitted to use race- and gender-based considerations, including race and gender-based tables in determining the appropriateness of front pay. Ultimately, courts are unlikely to use statistical tables to determine a plaintiff's income.[198] However, courts consider several factors when evaluating the appropriateness of front pay, among which is life and worklife expectancy, both of which could be determined by reference to non-blended statistical tables.[199] In *Baker*, the court noted that the plaintiff "assumed she would work until age sixty-five. At the time, plaintiff was forty-four. The court took judicial notice that the current life expectancy of a woman is 79.5 years, citing to the U.S. Life Tables in taking judicial notice of Baker's life expectancy.[200] Although the female plaintiff was the one who asked the court to take judicial notice of her life expectancy, this consideration by the court has implications for courts' view on these tables in other cases or other areas of law as well. Interestingly, the court in *Baker* characterized the plaintiff's life expectancy as a "neutral factor in the front pay analysis."[201]

Admittedly, the effect of these tables in the Title VII context may often be limited. A central part of front pay damage doctrine requires the mitigation of damages—requiring the court to cut off the damage award after the period of time that the plaintiff should have been able to find comparable work.[202] Moreover, courts also use other data points related to worklife expectancy,

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[196] *Franks v. Bowman Transp. Co.*, 424 U.S. 747, 763-64, 96 S.Ct. 1251, 1264, 47 L.Ed.2d 444 (1976)

[197] Title VII and, perforce, the ADA authorize courts to award back pay to compensate plaintiffs for the increase in pay they would have received had they not been wrongfully denied promotion. *See* 42 U.S.C. § 2000e-5(g)(1) (Title VII section authorizing back pay). Front pay, means the wage differential between plaintiff's current position and the position which he was denied.

[198] Statistical wage tables are unlikely to be used because 42 USCA 1981a(b)(3) limits compensatory damage awards to a maximum amount of $300,000 in the Title VII context. Because Title VII deals with discrimination in the workplace, plaintiffs generally have an established income such that wage tables are not necessary.

[199] *E.g. Donlin v. Lighting North America Corp.*, 581 F.3d 73, 87 (3d Cir. 2009) (describing the factors); *Baker v. John Morrell & Co.*, 263 F.Supp.2d 1161, 1178 (N.D. Iowa 2003) (noting that the court "finds that the fifth factor—Baker's life and work expectancy—are neutral considerations in the front pay analysis.")

[200] *Baker*, 263 F.Supp.2d at 1178.

[201] *Id.*

[202] *E.g.*, *Dollar v. Smithway Motor Xpress, Inc.*, 787 F. Supp. 2d 896, 920-21 (N.D. Iowa 2011) (noting "[a]n award of front pay until retirement ignores the plaintiff's duty to mitigate damages and the district court's corresponding obligation to estimate the financial impact of future mitigation."); *see also Gilster v. Primebank*, 884 F. Supp. 2d 811, 829 (N.D. Iowa) (finding that the plaintiff's additional life expectancy was 49.8 years, but limiting front pay damages to five years because the period would be "sufficient for Gilster to gain the qualifications necessary to become competitive in a different field and to complete her education."); *Baker*, 263 F.Supp.2d at 1184-85 (reducing the plaintiff's front pay to three years, even though her remaining life expectancy was over twenty years, because three years would allow the plaintiff "a reasonable amount of time to sufficiently recover from her post-traumatic stress and anxiety disorders such that she can fully participate in the job market.")

including mandatory retirement ages or plaintiff testimony regarding anticipated retirement.[203] Nonetheless, however small, the actual impact of these tables in employment discrimination cases, their very use is jarring, if even symbolically, in light of the statute's attempt to reduce discrimination based on race and sex.

B. AMERICAN WITH DISABILITIES ACT

The American With Disabilities Act (ADA) uses remedies authorized by Title VII. Thus, for example in *Colwell v. Suffolk County Police Department*, three plaintiff police officers brought suit against the police department, alleging that they were denied promotion as a result of their physical disabilities in violation of the ADA.[204] The court defined the plaintiff's remaining life and work life years in reference to the New York Pattern Jury Instructions Table 1, which provides life expectancy values for males (albeit without reference to race).[205] In *Tobin v. Liberty Mut. Ins. Co.*, a plaintiff received a damage award that included additional pension benefits due to the employer's failure to accommodate his bipolar condition.[206] Upon appeal, the court upheld the jury's award despite the fact that the jury predicted the defendant would out live statistical expectations.[207] Despite the proven, and frankly obvious discriminatory effect of non-blended tables, courts—in the absence of a clear legal directive otherwise—have and will continue to use non-blended tables in awarding damages for discrimination under the ADA. [208]

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[203] *E.g.*, *Warren v. Cnty. Comm'n of Lawrence Cnty., Ala.*, 826 F. Supp. 2d 1299, 1313-16 (N.D. Ala. 2011) (awarding front pay until the plaintiff's assumed mandatory retirement age of 65); *Gotthardt v. National R.R. Passenger Corp*., 191 F.3d 1148, 1156 (9th Cir. 1999) (upholding front pay award until the plaintiff's mandatory retirement age of 70); *Baker*, 263 F. Supp. 2d 1161, 1178 (accepting plaintiff's testimony that "she would work until age sixty-five" as evidence of her worklife expectancy).

[204] *Colwell v. Suffolk Cnty. Police Dep't*, 967 F. Supp. 1419, 1422 (E.D.N.Y. 1997) *rev'd*, 158 F.3d 635 (2d Cir. 1998).

[205] *Id.* ("Based on the life expectancy table utilized by the Court, the jury was told that the life expectancy for a 52 year-old male is 76.7 years, for a 48 year-old male is 76.1 years, and for a 47 year-old male is 75.9 years. . . . The jury was told that, according to the same table, a 52 year-old has 10.8 more active years in the labor force, a 48 year-old has 13.9 more years, and a 47 year-old has more 14.7 years."). New York Pattern Jury Instructions Civil Appendix A. Given that the table is strictly a "Life table," it is unclear why the court cited to the table for work life expectancy values. Eventually the Second Circuit reversed the damage award on appeal, finding that there was insufficient evidence to prove that the plaintiffs were disabled under the ADA because their impairments were not substantial, and thus eligible for its remedies against discrimination. *Colwell v. Suffolk Cnty. Police Dep't*, 158 F.3d 635, 639 (2d Cir. 1998).

[206] 2007 WL 967860, at *10 (D.Mass.,2007).

[207] *Id.* at *1, 10. In *Tobin*, trial court took judicial notice of the life expectancy charts provided by the plaintiff and instructed the jury that a white 60 year old male is expected to live for another 20.3 years. The jury determined that the defendant would live 7.5 years longer than the chart's prediction. The court upheld the jury's award, finding that "Life expectancy is inherently speculative, and jurors are not bound by actuarial tables, which do not provide evidence of how long any particular individual will live."

[208] *See Hillman v. City of Chicago*, 14 F.Supp.3d 1152, 1177 (N.D.Ill.,2014) (the court acknowledged that expert analysis "did not consider Plaintiff's health condition or specific life expectancy, only the statistical average life expectancy for a **man** of the Plaintiff's age."); *Rutledge v. U.S.*, 2008 WL 3914965, at *11 (D.Guam,2008) (the court accepted the testimony of the United State's economic expert, which in turned relied on the *United States Tables 2003*, which includes tables delineating on both race and gender lines). *But see Webner v. Titan Distribution, Inc.*, 101 F.Supp.2d 1215, 1237 (N.D.Iowa, 2000) (plaintiff's work and life expectancy where factors in calculation

C. THE NATIONAL CHILDHOOD VACCINE INJURY ACT

Another compensatory framework is found in the National Childhood Vaccine Injury Act of 1986.[209] This law allows those injured or killed by certain vaccines to claim compensation outside the traditional tort system while reducing the liability and insurance and litigation costs of vaccine manufacturers.[210] There are no regulations that further specify the data or statistics to be used for the calculation of these awards.[211] The statutory language also does not indicate whether race- or gender-based statistics should or should not be used in these determinations.[212] Therefore, the matter is left to the relevant parties' discretion.

A WestlawNext search for "300aa-15(a)(3)" yielded 140 results in the "cases" results category. After reviewing 51 results, spanning 42 cases, 15 cases were relevant because they address future loss of earnings to some degree.[213] Ten cases calculated future loss of earnings with statistics from the U.S. Department of Labor's Bureau of Labor Statistics, which was not collected by race or gender in the establishment survey or differentiated in the tables by race or gender. [214]

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of front-pay awards, however, given a lack of testimony "regarding the significance of [these factors] on [plaintiff's] ability to secure comparable employment," the court refused to speculate on such significance, and disregarded these factors)

[209] 42 U.S.C. §§ 300aa-1 to 300aa-34 (providing compensation for "actual and anticipated loss of earnings" for those injured after the age of 18 and "loss of earnings" for those injured before 18 and likely to suffer impaired earning capacity (§ 300aa-15(3)); for persons injured by vaccines after the age of 18, lost earnings are determined in accordance with "generally recognized actuarial principles and projections" (§ 300aa-15(3)(A)); for persons injured by vaccines before the age of 18, compensation is based on "the average gross weekly earnings of workers in the private, non-farm sector…" (§ 300aa-15(3)(B)). However, recovery for lost earnings, pain and suffering, and attorneys' fees and costs are capped at $30,000 for those injured by vaccines administered before the effective date of the Vaccine Injury Program. 42 U.S.C.A. § 300aa-15(b).

[210] *See Schaefer v. American Cyanamid Co*., 20 F.3d 1, 2-3 (1st Cir. 1994).

[211] *See* 42 C.F.R. §§ 100.1-3 (West, WestlawNext through Sept. 19, 2013).

[212] *See id.*

[213] 18 cases did not reach or did not litigate the issue of loss of earnings at all. Six cases only awarded compensation for lost wages based on petitioners' actual wages at the time of injury. Three matters were retrospective cases under § 300aa-15(b) that awarded the remainder of the $30,000 allowed for loss of earnings, pain and suffering, attorneys' fees and other costs without calculating actual future damages.

[214] Some of these cases cited the source of their figures and some did not. *See Stotts for Stotts v. Sec'y of Dept. of Health & Human Services*, No. 89-108V, 1990 WL 293856 (Cl. Ct. 1990); *Childers v. Sec'y of Dept. of Health & Human Services*, 96-194V, 1999 WL 218893 (Fed. Cl. Mar. 26, 1999); *Shaw v. Sec'y of Dept. of Health & Human Services*, 89-7-V, 1989 WL 250126 (Cl. Ct. Sept. 22, 1989)*; Stroher v. Secretary of Dept. of Health* & *Human Services*, No. 88-32V, 1989 WL 250120 (Cl. Ct. 1989); *Sheehan v. Sec'y of Dept. of Health &Human Services*, 19 Cl. Ct. 320 (Cl. Ct. 1990); *Euken by Euken v.* Sec'y *of Dept. of Health* & *Human Services*, No. 91-1059V, 1992 WL 132548 (Cl. Ct. 1990); *Brown v. Sec'y of Dept. of Health &Human Services*, 88-24-V, 1989 WL 250117 (Cl. Ct. Sept. 13, 1989*); Davis v. Sec'y of Dept. of Health &Human Services*, 19 Cl. Ct. 395 (Cl. Ct. 1990); *Wasson by Wasson v.* Sec'y *of Dept. of Health* & *Human Services*, No. 90-208V, 1991 WL 20077 (Cl. Ct. 1991); *First Commercial Bank v. Sec'y of Dept. of Health & Human Services*, No. 89-14-V, 1989 WL 250131 (Cl. Ct. 1989) (finding petitioner's proffered weekly earnings figures to be consistent with Bureau of Labor Statistics's July 1989 *Employment and Earnings* at 115). These 10 cases used average weekly earnings data from the BLS publication *Employment and Earnings*. See *Davis*, 19 Cl. Ct. at 400 n. 4, *Stroher*, 1989 WL 250126 at *11 n. 12 (noting petitioner's expert used a much higher figure from the March 1989 edition of *Employment and Earnings*); *see also*

Recall that calculating future loss of earnings requires knowing not only average wage but also worklife statistics.

Of these ten cases, the most interesting one is *Childers v. Sec'y of Health & Human Services*,[215] which is notable for its reasoning on the issue of worklife expectancy.[216] In *Childers*, the special the petitioner's expert presented gender-blended worklife expectancy data and the respondent's expert presented gender-differentiated worklife expectancy data.[217] Conflicting precedents where found for the use of gender-based worklife expectancies of female children.[218] The court ultimately rejected gender-based worklife expectancy, stating:[219]

> Does it follow that because *some* women have historically been able to spend years out of the workforce, female children in the Program should always get substantially smaller awards for "lost earnings" than male children? I do not think so. Rather, I note that nowhere in the statutory formula of 300aa–15(a)(3)(B) is there any express, or even implied, distinction between males and females. Indeed, the formula *mandates*, as discussed above, that the basic earnings figure be determined by averaging the earnings of *all* workers, even though historically female

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Euken, 1992 WL 132548 at *7 (stating figure that matches *Employment and Earnings*, U.S. Department of Labor, Bureau of Labor Statistics at 159, Vol. 39 No. 3 Mar. 1992, Table C-7), *Wasson*, 1991 WL 20077 at *7 n. 15 (citing *Employment and Earnings*, U.S. Department of Labor, Bureau of Labor Statistics at 137, Vol. 37 No. 10 Oct. 1990, but not the particular table C-7). *Employment and Earnings* statistical tables are based on non-race-based and non-gender-based Current Employment Statistics Survey (CES) data. Their figures cited to or were traceable to either Table C-1 or C-7 of *Employment and Earnings*. *See e.g.*, Bureau of Labor, U.S. Department of Labor, Employment and Earnings: March 1992, C-7. *Average hourly and weekly earnings of production or nonsupervisory workers' on private nonfarm payrolls, seasonally adjusted* 159, available at http://fraser.stlouisfed.org/docs/publications/employment/1990s/emp_031992.pdf.

[215] No. 96-194V, 1999 WL 218893 (Fed. Cl. Mar. 26, 1999). Six more cases in the sample discuss future loss of earnings. One case cited *Economic Report of the President, 1989* – that data are also not race- or gender-based. *Clark by and Through Clark v. Secretary of Dept. of Health and Human Services*, No. 88-44-V, 1989 WL 250075 at *6 n. 24 (Cl. Ct. 1989). *Clark*'s figure for average weekly earnings is a close but not exact match for Table B-45 of the 1989 report which cited BLS. BLS's *The Employment Situation* and *Employment and Earnings* publications for the same time period have very close but not exactly matching figures. None of these three sources have race- or gender-based statistics. Four cases awarded or recommended future loss of earnings in lump sums without disclosing the average weekly earnings used in their calculations. *Tembenis v. Sec'y of Health & Human Services*, No. 03-2820V, 2012 WL 3744722 (Fed. Cl. July 31, 2012); *Holihan v. Sec'y of Health & Human Services*, 95-399V, 1999 WL 63954 (Fed. Cl. Jan. 19, 1999); *Hanagan By Hanagan v. Sec'y of the Dept. of Health & Human Services*, 19 Cl. Ct. 7, 11 (Cl. Ct. 1989); *Edgar on behalf of Edgar v. Secretary of Dept. of Health and Human Services*, 26 Cl. Ct. 286 (Cl. Ct. 1992).

[216] *See Childers*, 1999 WL 218893 at *16-18.

[217] *Id.* at *16.

[218] *Id.* at *17.

[219] *Id.* Special Master Hastings continues his reasoning in the accompanying footnote and draws parallels between his result and those in non-Vaccine Injury Program cases that have "found it to be inappropriate to construct "lost earnings" awards differently for men and women based upon gender. See, *e.g.*, *Caron v. United States*, 548 F.2d 366, 371 (1st Cir.1976) (in awarding damages for lost earnings, "we see no reason to distinguish between the sexes"); *Reilly v. United States*, 665 F.Supp. 976, 997 (D.R.I.1987) (counseling against "disparate treatment" of men and women in "lost earnings" awards)."

> workers have earned somewhat less than male workers. Therefore, just as we do not under the formula use different *average earnings* figures for males and females, I see no good reason to use different *worklife expectancy* figures based upon gender.

Childers's express rejection of gender-differentiated worklife expectancy seems to be an exception to the rule among the cases that addressed worklife expectancy despite the special master's finding of conflicting precedent.

In contrast, *Edgar on behalf of Edgar* was a case with a female petitioner injured before the age of 18.[220] The victim's total work life earnings were based on the estimated work life a high school educated female despite the petitioner providing a projection of total work life of the median of historical male and female work life for college educated persons.[221] Indeed, more generally, our investigation reveals that as for life or worklife expectancies, special masters in the sample more frequently used gender- and race-based statistics.[222] Four out of nine cases that provide life or worklife expectancy figures cited to or were traceable to the BLS's *Worklife Estimates: Effects of Race and Education* (February 1986), which *differentiate*s on the basis of race and gender.[223]

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[220] 26 Cl. Ct. at 287.

[221] *Id.* at 291. Although an exact match in BLS statistics for an estimated worklife of 29 years was not found, there were very similar figures in Tables A-5, which is gender- and race-based, and A-6, which is gender-based, of *Worklife Estimates*, February 1986.

[222] There were 9 cases in the sample that discussed life expectancy figures. *See Edgar on behalf of Edgar v. Secretary of Dept. of Health and Human Services*, 26 Cl. Ct. 286 (Cl. Ct. 1992) (reviewing special master's consideration of various work life earnings projections based on gender and educational level), *vacated on other grounds*; *Shaw*, 1989 WL 250126 at *8 (citing U.S. Department of Labor, Bureau of Labor Statistics, *Worklife Estimates: Effects of Race and Education*, Bulletin 2254, February 1986) ("At age 18, the average worklife expectancy of a white male is 39.4 years."); *Hanagan by Hanagan v. Sec'y of the Dept. of Health & Human Services*, 19 Cl. Ct. 7, 16 (Cl. Ct. 1989) (stating male petitioner's assumed average life expectancy without specifying gender or race); *Stroher*, 1989 WL 250120 at *11 (projecting worklife expectancy based on race- and gender-differentiated Table A-2 from *Worklife Estimates, available at* http://www.bls.gov/cps/cpsb2254.pdf); *Childers*, 1999 WL 218893 at *16-18 (rejecting worklife expectancy based solely on experience of women in favor of an average worklife for persons of both genders); *Sheehan*, 19 Cl. Ct. at 322 (assuming "at least twenty more years work" without citation); *Euken*, 1992 WL 132548 at *7 (referencing BLS figures as the basis of 39.4 years worklife expectancy, but not naming a specific publication or table). However, *Worklife Estimates* gave a figure of 39.4 years for expected active life for 17-year old white men in Table A-2, and none of its other worklife expectancies in Table A-1 and A-3 are a match. *See* Bureau of Labor Statistics, U.S. Department of Labor, *Worklife Estimates: Effects of Race and Education*, February 1986, Bulletin 2254, available at http://www.bls.gov/cps/cpsb2254.pdf. *See also First Commercial Bank*, No. 89-14-V, 1989 WL 250131 at *15 (recommending finding of at least 27 years productive work if not for injury without citation); *Schroeder by Meland v. Sec'y of Dept of Health & Human Services*, No. 88-22V, 1989 WL 250110 at *12, (using expert testimony to determine life expectancy but not citing any particular source of data).

[223] *See e.g.*, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2254 (February 1986), Table A-2, *available* at http://www.bls.gov/cps/cpsb2254.pdf. Four cases determined life or worklife expectancy but did not provide adequate information to find any particular statistical source for the special master's assumptions or the expert's testimonies.

VI. THE SOLUTION

Above I argued that using race- and gender-based tables is unfair and inefficient because using these tables has the devastating effect of perpetuating discrimination—both by providing inaccurate discriminatory damage awards and by creating perverse ex-ante incentives for potential tortfeasors. In this section, I will sketch what, in my view, should be the alternative.

In this section I will defense the simplest possible solution: courts should adopt one blended worklife table, one blended mortality table, and one blended wage table for use in damage calculations in tort cases.

Specifically, calculating damages for future pain and suffering requires establishing a plaintiff's pain and suffering as well as her expected longevity. As for the first component, courts can continue estimating pain and suffering in the same way they have been doing it so far. To the extent any changes are required, they are beyond the scope of this paper.[224] As to the second component, my proposal is to use a blended life-expectancy statistics rather than a gender- and race-based table. Calculating damages for future medical costs requires establishing a plaintiff's medical expenses as well as a plaintiff's expected longevity. Under my proposal, for the first component, courts would still require expert testimony to establish the plaintiff's annual medical expenses.[225] For the second component, however, courts would use a non-racial, non-gendered life expectancy statistic and eliminate the bias from the calculation. [226] Calculating damages for future loss of income requires establishing future wages as well as expected working years. I

[224] Many problems exist in the way courts estimate pain and suffering. However, that discussion is well beyond the scope of this paper. *See* Ronen Avraham, *Putting a Price on Pain and Suffering*, 100 NU L. REV. (2006)

[225] It remains an open question whether there need to be room, as exists today, for courts to adjust the life expectancy statistic based on particular health or habits of the plaintiff (e.g. she suffers from heart disease / everyone in her family lives until 90 years old, etc.).

[226] Studies have demonstrated that, controlling for socio-economic factors, the life expectancy differences between races are seriously minimized or disappear. HILARY WALDRON, MORTALITY DIFFERENTIALS BY RACE, U.S. SOC. SEC. ADMIN. OFFICE OF POLICY (Dec. 2002), *available at* http://www.ssa.gov/policy/docs/workingpapers/wp99.html; *see also* Morgan Kelly, *Study reveals impact of socioeconomic factors on the racial gap in life expectancy*, NEWS AT PRINCETON (Apr. 4, 2012), *available at* http://www.princeton.edu/main/news/archive/S33/35/55M88/ (finding that socioeconomic differences account for 70-80% of the life expectancy divide between blacks and whites). Given that in reality, it's entirely appropriate that race-neutral life expectancy be used as a basis for future medical expenses.

Reasons for the life expectancy divide between genders is less clear. There are various possible reasons accounting for the divide, including genetic reasons, social choices (including building a strong support network), and employment. Certainly, some may argue that if the differential is because of positive choices made by women, women should benefit from a higher life expectancy prediction. However, given the difficulty in disentangling competing genetic, social, and employment factors influencing female life expectancy, I argue that it is most appropriate to defer to blended gender tables.

Additionally, as discussed by Cary Franklin, in other contexts, courts are skeptical about attempts to defend discriminatory laws by arguing that the laws benefit women, since women's rights litigators in the 1970s pushed for total gender equality by convincing courts that laws that seem to benefit women are more often part of a broader framework that disadvantage women on the whole. *See generally* Cary Franklin, *The Anti-Stereotyping Principle in Constitutional Sex Discrimination Law*, 85 N.Y.U. L. REV. 83 (2010).

make two proposals in this area. First, when calculating the future wages of child plaintiffs, courts should not require expert testimony to determine children's future income. Instead, they should use the average national wage, not accounting for race or gender. My proposal deviates from the proposal put forward by Chamallas and Wriggins to use white males' tables for everyone. The reason I deviate is that their proposal will lead to over deterrence. Second, for the expected worklife calculations, courts should use blended statistical worklife tables. The outcome would be a non-discriminatory and unbiased damage award.[227]

While these proposals will certainly bring those disadvantaged by race or gender in the current system to a more equal level, it will reduce the damages for those who are currently advantaged in the system because of their race or gender. The solution for the currently advantaged who are worried that the average income will not fully cover their losses in the case of an injury is to purchase first party (private or public) insurance. Similarly, those worried that they might live longer than average, and therefore might not have received sufficient damages for future medical costs or future pain and suffering, should also purchase insurance. Since the tort system is itself a system of insurance pre-factored into the costs of goods and services, it is only appropriate that that system be an egalitarian one—and that those dissatisfied by their potential lot purchase additional insurance to meet their individual needs.

Once we conceptualize tort damage awards as a form of insurance, the proposal becomes more in line with current trends.[228] Many state legislatures have codified statutes that expressly permit the use of sex-neutral blended tables in life insurance policies (although, admittedly, most do not preclude the use of sex-based tables as an alternative).[229]

Interestingly, my proposal can be compared with an approach set forth by the Israeli Supreme Court, which is among the most progressive supreme courts in the world in this context.[230] First, nothing in the logic of my analysis prevents courts from applying it to all plaintiffs without established earnings record regardless of their age. By contrast, the Israeli Supreme Court, which required the use of national average wage for the calculation of damages for all minors,

[227] Some questions remain about whether we should adjust the loss of income up or down based on personal merits particularized to the plaintiff. While the concept sounds appealing in the abstract (and more closely aligned with the "make whole" goal of tort law), it poses some problems in application. First, it may assume away the possibility of career change for adult plaintiffs. If we adjust down based on a plaintiff's occupation as a janitor, we assume that he would never have moved into a more lucrative career. However, if we allow claims that plaintiffs intended to change career, it may inappropriately incentivize strategic behavior, and encourage all plaintiffs to argue that they planned to pursue more lucrative careers. Second, it allows for back-end discrimination based on family demographics. Allowing for adjustment may leave room for defendants to argue that family dynamics and parental decisions correlate with the plaintiff's income. Doing so would replicate the existing socio-economic gap in damage awards, but through the lens of family background.

[228] This understanding of tort law is well-established. *See, e.g.*, Heidi Li Feldman, *Harm and Money: Against the Insurance Theory of Tort Compensation*, 75 TEX. L. REV. 1567, n.9 (1997) (listing economic scholars' discussions of tort law as an insurance theory).

[229] See Avraham, Logue and Schwarcz, Univ of Southern California Law Review (2015) for details.

[230] CA 10064/02 *Migdal Ins. Co. Ltd. v. Rim Abu Hanna* [2005]

irrespective of race, gender, origin, or religion, limited its holding to minors without established earnings records. Because the bulk of personal injury plaintiffs will be adults, many of whom (especially women) without an established earning records, limiting equality to minors will have only a minimal effect on the system as a whole. Second, my approach applies the national average wage without exception.[231] In contrast, the Israeli Supreme Court uses the average income in society as a presumption, but then allows the parties to argue for deviations upwards or downwards if they can prove that the earning capacity would have been higher or lower than the national average because of qualifications, educational attainment, or aspirations for future success.[232] However, the ex-ante benefits of allowing for such deviations are nil, and a better way to address this problem within tort law is to allow "worried" plaintiffs to purchase insurance. Third, while the Israeli Supreme Court's approach uses identical retirement age for men and women (even though in practice men and women retire at different ages), it does not use identical mortality tables for men and women. My approach suggests using identical mortality tables, even if it hurts women, even if gender is more fixed and immutable than race, and regardless of whether gender mortality gaps are caused by choices, genetics, or a combination of both.

A defendant forced to compensate a plaintiff according to blended tables would likely bring up an obvious criticism of my proposal—why should the defendant have to pay the bill for the proposed discrimination "fix?" After all, a defendant may argue, discrimination is a societal problem, and as such should burden everyone equally. Accordingly, the just solution would be to have the defendant pay the exact damages using non-blended tables, and victims will be rewarded the difference from the government via the tax and transfer system. This way, the burden will be spread to society rather than just asking the defendant to shoulder the blame for a societal problem. However, this fix does nothing to address the fact that our courts would continue to perpetuate discriminatory practices, practices which in other institutions inspire revulsion.

And yet, a tweak to the proposed ruled could ostensibly rectify this problem: the defendants would pay in courts according to blended tables, and then receive a tax credit for the difference. This solution, although successful in spreading costs and protecting the image of courts, is deficient on another ground. Defendants receiving tax credits would have a continued incentive to base their liability on non-blended characteristics. Under this alternative, society would still subsidize targeting.

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[231] *Compare* Sherri Lamb, *Toward Gender-Neutral Data for Adjudicating Lost Future Earning Damages: An Evidentiary Perspective*, 72 Chi.-Kent L. Rev. 299, 338 (1996). (Suggesting to "consider each person as equivalent the average, unless evidence is produced which removes the plaintiff from the normal range.")

[232] CA 10064/02 Migdal Ins. v. Rim Abu Hanna [2005] (Isr.). Judge Weinstein, though not discussing the option at length, highlights the possible use of a national average unless evidence is produced to remove the plaintiff from the range as consistent with his general conclusion that tort law should be an individualized assessment based on individual characteristics. G.M.M. ex rel. Hernandez-Adams v. Kimpson, 13-CV-5059, 2015 WL 4572470, at *25 (E.D.N.Y. July 29, 2015)

Another argument defendants may raise relates to Title VII which prohibits discrimination in the work place only to employers who have 15 or more employees.[233] This reflects a societal judgement that small employers should not bear the costs of anti-discrimination norms. Accordingly, perhaps big defendants should be held liable using blended tables whereas small defendants should be subject to non-blended tables. The answer to this argument might be that society should take inspiration from the Fair Housing Act which forbids discrimination in housing from everyone big and small (outside limited exceptions for certain single-family homes and owner-occupied dwellings).[234] Clearly, society is willing to put the burden of compliance on both large and small property owners through the FHA to combat discrimination in the housing market. Accordingly, there is at least some societal indication that defendants of all sizes should be held liable using blended tables.

VI. SUMMARY

This paper argued that the current practice of awarding damages in courts is not only unfair but also inefficient and therefore should be abolished. I started by examining the current approaches for determining tort damages. These approaches include the use of life expectancy, worklife expectancy, and average wage statistical tables used by courts. As pointed out, many of these tables provide granular data delineated by both gender and race. The scholarly response to the use of these tables, and resulting discrimination has largely been focused on average wage tables, largely ignoring discrimination arising from both life expectancy and worklife expectancy tables. This lack of attention continues to perpetuate in most tort-case law books, indoctrinating the next generation of lawyers with the view that questions of discrimination are not central to tort law.

I then moved into an examination of the various theories for tort law. I sought to demonstrate how the use of non-blended tables was not only non-detrimental to the theorists' approach, but at times necessary. First, I argued that proponents of a distributive justice theory of tort-law should readily advocate for the use of blended statistical tables in tort damages calculations. This is because the three primary basis for distributive justice rationales—loss-spreading, fairness, and egalitarianism—all tolerate or support the non-discriminatory aims of such a motion.

Next, I demonstrated that the corrective justice theory (and its offspring: civil recourse theory) of tort law should accept the use of blended tables by, among other things, adopting a broader interpretation of the "make-whole" doctrine.

I then switched to my main focus and analyzed the problem from an efficiency perspective. Here the analysis is gloomy. Efficiency calls for using non-blended tables, and views targeting

[233] 42 U.S.C. § 2000e(b)
[234] 2 U.S.C. 3603

the disadvantaged as a desired result. My main focus was to attempt to find arguments to show that adherence to the efficiency perspective of tort law not only tolerates the use of non-blended tables, actual efficiency actually demands it. It remains to be determined how successful this attempt will prove.

Finally, I exposed and examined the ironic usage of non-blended tables in federal laws, including laws whose sole purpose is to fight discrimination.

Several principled questions are still left open. Can the arguments presented in this paper be expanded beyond race and gender? For example, there are separate tables that adjust average life expectancy for disability, including tables for those suffering from quadriplegia.[235] Use of these tables means that the more severely injured the plaintiff is, the more the defendant gets a "discount" for the harm he has caused, which is problematic in terms of overall fairness but also in terms of incentives. A related question is to what extent the arguments presented in this paper can be expanded beyond children. As it comes out, it is easier to digest that children of all genders and races should receive the same damages for the same injury, than it is to digest this for adults. The arguments and logic however suggest similar conclusions for adults as well.

Another interesting question is to what extent non-blended tables should be used when such usage *helps* minorities. Judge Weinstein seems to think that such usage is legitimate on affirmative action grounds.[236]

Lastly, an extremely important question arises as to what extent the practice of using non-blended tables is not only unfair and inefficient but also unconstitutional. As it turns out, despite some (ignored) views that this practice is unconstitutional the question is not at all simple, and therefore is to be left for another occasion.[237]

[235] *See McMillan v. City of New York*, 2008 WL 4287573, *2 (2008).
[236] *Id*.
[237] Kim Yuracko and Ronen Avraham, Is Tort Law Unconstitutional? (manuscript). Martha Chamallas and Jennifer Wriggins have long argued that using wage tables is unconstitutional.

Appendix

Table 1. Additional Years of Life for Males and Females[238]

	Men			Women		
Age	Life Expectancy	Standard Deviation	Median	Life Expectancy	Standard Deviation	Median
39	36.0	14.1	37.6	41.5	14.3	43.8
40	35.1	14.0	36.6	40.6	14.2	42.8
41	34.2	13.8	35.7	39.6	14.1	41.9
42	33.3	13.7	34.7	38.7	14.0	40.9
43	32.4	13.5	33.8	37.8	13.9	39.9
44	31.5	13.4	32.8	36.8	13.8	38.9
45	30.7	13.2	31.9	35.9	13.7	38.0
46	29.8	13.1	31.0	35.0	13.5	37.0
47	28.9	12.9	30.0	34.1	13.4	36.0
48	28.1	12.8	29.1	33.1	13.3	35.1
49	27.2	12.6	28.2	32.1	13.1	34.1
50	26.4	12.4	27.3	31.3	13 0	33.2
51	25.5	12.3	26.4	30.5	12.8	32.2
52	24.7	12.1	25.5	29.6	12.7	31.3
53	23.9	11.9	24.6	28.7	12.5	30.3
54	23.1	11.7	23.7	27.8	12.4	29.4
55	22.3	11.5	22.9	27.0	12.2	28.5
56	21.5	11.3	22 0	26.1	12.0	27.5
57	20.7	11.1	21.2	25.3	11.8	26.6
58	20.0	10.9	20.3	24.4	11.7	25.7
59	19 2	10.7	19.5	23.6	11.5	24.8
60	18.5	10.5	18.7	22.8	11.3	23.9
61	17.8	10.3	17.9	22.0	11.1	23.1
62	17.1	10 0	17.2	21.2	10.9	22.2
63	16.4	9.8	16.4	20.4	10.7	21.3
64	15.8	9.6	15.7	19.7	10.4	20.5
65	15.1	9.4	14.9	18.9	10.2	19.6
66	14.5	9.1	14 2	18.2	10 0	18.8
67	13.8	8.9	13.5	17.4	9.8	18.0
68	13.2	8 7	12.9	16.7	9.6	17.2
69	12.6	8.4	12.2	16.0	9.3	16.4
70	12.0	8.2	11.6	15.3	9.1	15.6

Table 2. Characteristics for Initially Inactive Men with Bachelor's Degree[239]

[238] Elizabeth Arias, *U.S. Life Tables 2008*, 61 NATIONAL VITAL STATISTICS REPORTS 12 (2012).

[239] Skoog, Gary R., James E. Ciecka, and Kurt V. Kreuger. "The Markov Process Model of Labor Force Activity: Extended Tables of Central Tendency, Shape, Percentile Points, and Bootstrap Standard Errors". Journal of Forensic Economics 22(2), 2011, pp.165-229. ("Tables contain three measures of central tendency (mean or worklife expectancy, median, and mode), three measures of shape (standard deviation, skewness, and kurtosis), and four percentile points (10th , 25th , 75th , and 90th). Tables also contain bootstrap estimates of worklife and their standard errors.").

Age	WLE Mean	Median	Mode	SD	SK	KU	10%	25%	75%	90%	WLE-B	SE-B
20	58.70	40.00	41.00	9.10	-1.50	6.18	28.00	36.00	44.00	48.00	58.65	0.29
21	57.99	39.00	40.00	8.96	-1.27	6.08	28.00	34.00	44.00	47.00	57.95	0.27
22	57.52	38.00	40.00	8.82	-1.25	5.96	27.00	33.00	43.00	47.00	57.28	0.28
23	56.72	38.00	39.00	8.67	-1.19	5.81	27.00	33.00	42.00	46.00	56.67	0.28
24	56.00	37.00	38.00	8.54	-1.14	5.64	26.00	32.00	41.00	45.00	55.94	0.29
25	55.20	36.00	37.00	8.41	-1.09	5.47	25.00	31.00	40.00	44.00	55.15	0.28
26	54.33	35.00	36.00	8.29	-1.05	5.28	24.00	30.00	40.00	43.00	54.29	0.27
27	53.47	34.00	36.00	8.18	-0.98	5.11	24.00	30.00	39.00	42.00	53.41	0.26
28	52.57	34.00	35.00	8.08	-0.95	4.94	23.00	29.00	38.00	42.00	52.52	0.29
29	51.66	33.00	34.00	7.98	-0.88	4.77	22.00	28.00	37.00	41.00	51.59	0.27
30	50.75	32.00	33.00	7.89	-0.83	4.61	21.00	27.00	36.00	40.00	50.65	0.26
31	29.79	31.00	32.00	7.81	-0.78	4.45	20.00	26.00	35.00	39.00	29.75	0.29
32	28.84	30.00	31.00	7.74	-0.75	4.29	19.00	25.00	34.00	38.00	28.81	0.29
33	27.82	29.00	30.00	7.67	-0.68	4.15	18.00	24.00	33.00	37.00	27.79	0.33
34	26.75	27.00	29.00	7.62	-0.65	3.98	17.00	23.00	32.00	36.00	26.67	0.32
35	25.69	26.00	28.00	7.57	-0.58	3.85	16.00	22.00	31.00	34.00	25.60	0.29
36	24.61	25.00	26.00	7.52	-0.54	3.70	15.00	20.00	30.00	33.00	24.54	0.32
37	23.52	24.00	25.00	7.46	-0.49	3.58	14.00	19.00	28.00	32.00	23.44	0.36
38	22.44	23.00	24.00	7.39	-0.44	3.47	13.00	18.00	27.00	31.00	22.38	0.36
39	21.42	22.00	23.00	7.31	-0.40	3.39	12.00	17.00	26.00	30.00	21.37	0.33
40	20.54	21.00	22.00	7.22	-0.37	3.31	11.00	16.00	25.00	29.00	20.48	0.34
41	19.71	20.00	21.00	7.15	-0.33	3.24	10.00	15.00	24.00	28.00	19.67	0.33
42	18.84	19.00	20.00	7.06	-0.29	3.17	9.00	15.00	24.00	27.00	18.77	0.32
43	17.93	18.00	19.00	7.00	-0.26	3.09	9.00	14.00	23.00	26.00	17.86	0.32
44	16.97	17.00	18.00	6.96	-0.22	3.00	8.00	13.00	22.00	25.00	16.91	0.31
45	15.98	16.00	18.00	6.93	-0.17	2.91	6.00	12.00	21.00	24.00	15.90	0.33
46	14.89	15.00	16.00	6.91	-0.12	2.81	5.00	10.00	20.00	23.00	14.80	0.34
47	13.69	14.00	15.00	6.88	-0.05	2.69	4.00	9.00	18.00	22.00	13.64	0.36
48	12.45	13.00	0.00	6.85	0.04	2.60	3.00	8.00	17.00	21.00	12.43	0.33
49	11.26	11.00	0.00	6.72	0.15	2.54	1.00	6.00	16.00	20.00	11.25	0.34
50	10.14	10.00	0.00	6.57	0.24	2.52	0.00	5.00	15.00	19.00	10.12	0.35
51	9.04	9.00	0.00	6.37	0.36	2.56	0.00	4.00	13.00	17.00	9.05	0.34
52	8.03	8.00	0.00	6.12	0.47	2.64	0.00	3.00	12.00	16.00	8.04	0.30
53	7.20	7.00	0.00	5.87	0.58	2.76	0.00	2.00	11.00	15.00	7.19	0.31
54	6.48	6.00	0.00	5.62	0.69	2.91	0.00	1.00	10.00	14.00	6.47	0.30
55	5.80	5.00	0.00	5.36	0.80	3.11	0.00	1.00	9.00	13.00	5.80	0.29
56	5.09	4.00	0.00	5.07	0.94	3.39	0.00	0.00	8.00	12.00	5.06	0.26
57	4.44	3.00	0.00	4.76	1.08	3.75	0.00	0.00	7.00	11.00	4.41	0.25
58	3.88	2.00	0.00	4.46	1.23	4.16	0.00	0.00	6.00	10.00	3.85	0.24
59	3.38	2.00	0.00	4.16	1.38	4.64	0.00	0.00	6.00	9.00	3.35	0.21
60	2.95	1.00	0.00	3.87	1.54	5.21	0.00	0.00	5.00	9.00	2.89	0.21
61	2.52	1.00	0.00	3.58	1.70	5.87	0.00	0.00	4.00	8.00	2.48	0.20
62	2.19	0.00	0.00	3.35	1.86	6.56	0.00	0.00	3.00	7.00	2.15	0.18
63	1.93	0.00	0.00	3.11	2.00	7.24	0.00	0.00	3.00	6.00	1.90	0.16
64	1.70	0.00	0.00	2.90	2.15	7.97	0.00	0.00	2.00	6.00	1.68	0.14
65	1.50	0.00	0.00	2.71	2.30	8.76	0.00	0.00	2.00	5.00	1.47	0.14
66	1.32	0.00	0.00	2.52	2.46	9.68	0.00	0.00	2.00	5.00	1.29	0.13
67	1.15	0.00	0.00	2.34	2.63	10.74	0.00	0.00	1.00	4.00	1.12	0.13
68	0.99	0.00	0.00	2.16	2.82	11.96	0.00	0.00	1.00	4.00	0.96	0.12
69	0.86	0.00	0.00	1.98	3.02	13.36	0.00	0.00	0.00	3.00	0.82	0.11
70	0.74	0.00	0.00	1.82	3.23	14.88	0.00	0.00	0.00	3.00	0.70	0.10
71	0.63	0.00	0.00	1.66	3.45	16.61	0.00	0.00	0.00	2.00	0.60	0.10
72	0.53	0.00	0.00	1.51	3.69	18.69	0.00	0.00	0.00	2.00	0.50	0.09
73	0.45	0.00	0.00	1.35	3.96	21.08	0.00	0.00	0.00	2.00	0.42	0.08
74	0.37	0.00	0.00	1.21	4.25	23.71	0.00	0.00	0.00	1.00	0.35	0.07
75	0.31	0.00	0.00	1.07	4.49	26.59	0.00	0.00	0.00	1.00	0.28	0.07