

## Lives or Life-Years?

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### Abstract

*In protecting safety, health, and the environment, government has increasingly relied on cost-benefit analysis. In undertaking cost-benefit analysis, the government has monetized risks of death through the idea of "value of a statistical life" (VSL), currently assessed at about \$6.1 million. Many analysts, however, have suggested that the government should rely instead on the "value of a statistical life year" (VSLY), in a way that would result in significantly lower benefits calculations for elderly people, and significantly higher benefits calculations for children. Some economists have objected to VSLY on the basis of empirical findings that people's willingness to pay to reduce risks does not fall with age: People who are fifty or sixty are not willing to pay less for risk reduction than people who are twenty or thirty. But economists are wrong to invoke these findings against VSLY. A program that saves young people produces more welfare than one that saves old people. If the willingness to pay criterion does not reveal this fact, the problem lies in the willingness to pay criterion, not in VSLY. Nor does VSLY run afoul of ethical limits on cost-benefit analysis. It is relevant in this connection that every old person was once young, and that if all goes well, young people will eventually be old. In fact, VSL is a more plausibly a form of illicit discrimination than VSLY, because VSL treats the years of older people as worth far more than the years of younger people.*

### I. Introduction

In the last two decades, numerous regulatory agencies have conducted cost-benefit analysis (CBA) of proposed rules.<sup>1</sup> To undertake this analysis, they have had to quantify the value of a statistical life (VSL).<sup>2</sup> Recently the range, for that value, has been between \$1.5 million and \$6.1 million.<sup>3</sup> But there is a conspicuous difficulty with the use

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<sup>1</sup> See W. Kip Viscusi, *Fatal Tradeoffs* (1994).

<sup>2</sup> See *id.*

<sup>3</sup> See Robert Frank and Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position*, 68 U. Chi. L. Rev. 323, 334-35 (2001). For discussion of why these numbers might be too low, see Dora Costa and Matthew Kahn, *The Rising Price of Nonmarket Goods*, 93 *American Economic Review* 227, 229 (Papers and Proceedings) (2003) (suggesting a likely current value of \$12 million) Richard Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 *COL L REV* 941 (1999) (suggesting the need to inflate current figures for increases in social wealth and in the particular context of dreaded and involuntary risks); Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 *Geo. L. J.* 2255 (2002) (discussing plausible reasons to adjust current figures upwards); Dora L. Costa and Matthew Kahn, *Changes in the Value of Life: 1940-1980* (2002), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=364740](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=364740). For recent evidence that the current numbers

of a uniform VSL. Some regulatory programs benefit people who are relatively young; others benefit people who are relatively old. If a program would prevent fifty deaths of people who are twenty, should it be treated the same way as a program that would prevent fifty deaths of people who are seventy? Some people believe that other things being equal, a program that protects young people is better than one that protects old people.<sup>4</sup> In their view, government should consider not simply the number of lives at stake, or the VSL; it should also concern itself with the number of life-years, or the value of statistical life-years (VSLY).

At least since 1976, analysts have suggested the possibility of focussing regulatory policy on either life-years or quality-adjusted life-years (QALYs).<sup>5</sup> Through the latter measure, the issue is not merely the number of life-years saved by regulation; attention is also paid to qualitative improvements in health.<sup>6</sup> An aggregate measure of QALYs would catalogue all of the health-related benefits of regulation. And for many years, some agencies have experimented with the idea that cost-benefit analysis should consider either QALYs or VSLY, not merely the number of lives saved.<sup>7</sup> For simplicity, my focus here is on VSLY, which imposes lower informational demands on the regulator. A moment's reflection will show that VSLY can produce different results from VSL. If the beneficiaries of a regulation are mostly elderly people, then the regulation will seem far less attractive with the use of VSLY than with VSL. But if the beneficiaries are mostly children, then a regulation will seem far more attractive with VSLY than with VSL.

The issue received a great deal of public attention in connection with recent debates within Office of Management and Budget (OMB) and the Environmental Protection Agency (EPA).<sup>8</sup> In its "Clear Skies" proposal, EPA estimated benefits both by using the \$6.1 million figure and by using an alternative method that produced numbers of \$3.7 million for those under 70 and \$2.3 million for those 70 and older.<sup>9</sup> The difference between \$3.7 and \$2.3 million triggered intense criticism of a "senior death discount,"<sup>10</sup> and under public pressure, EPA abandoned the idea of varying VSL on the basis of age.<sup>11</sup> But according to published reports, the Office of Management and Budget has been encouraging federal agencies, including the EPA, to consider VSLY,<sup>12</sup> and

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are far too low, see W. Kip Viscusi, *Racial Differences in Labor Market Values of A Statistical Life* (2003), available on [ssrn.com](http://ssrn.com) (finding values as high as \$15.1 million in the case of white males).

<sup>4</sup> See, eg, Michael J. Moore and W. Kip Viscusi, *The Quantity-Adjusted Value of Life*, 26 *Economic Inquiry* 369 (1988).

<sup>5</sup> Richard Zeckhauser & Donald Shepard, *Where Now for Saving Lives?*, *Law & Contemp. Probs.*, Autumn 1976, at 5.

<sup>6</sup> *Id.*

<sup>7</sup> For examples, see Appendix.

<sup>8</sup> For recent discussion, see Robert H. Hahn and Scott Wallsten, *Is Granny Worth \$2.3 Million or \$6.1 Million?*, <http://www.aei.brookings.org/policy/page.php?id=138>

<sup>9</sup> See *id.*

<sup>10</sup> See John Tierney, *Life: The Cost-Benefit Analysis*, section 4, p. 3, *The New York Times*, May 18, 2003.

<sup>11</sup> *Id.*

<sup>12</sup> See Dana Wilkie, *White House Continues to Push For "Age" Discount In Rulemaking*, *Copley News Service* (May 16, 2003), available at

OMB's draft guidelines on cost-benefit analysis ask agencies to "consider providing estimates of both VSL and VSLY."<sup>13</sup> Building on existing studies, one proposal would value each year of life at \$273,000 for people over 65 but at \$172,000 for people who are younger.<sup>14</sup> Because the number of remaining years is part of the proposed calculus, a 65-year old, with a life expectancy of ten more years, would be valued at \$2.7 million, whereas a 40-year old, with thirty-five years left, would be valued at \$6 million. Thus regulations protecting people over forty would be worth less than they would under the \$6.1 million benchmark, whereas those under forty would be worth more. A ten-year old, with sixty-five years left, would be valued at over \$11 million.

My principal claim in this essay is that it is fully appropriate to focus on life-years, not merely lives, and that both academic and public criticisms of the life-years approach are misconceived. The reason for this conclusion is simple: If CBA is to be used at all, it is because CBA is a rough way of testing whether a regulation will promote people's welfare, understood to mean their actual well-being in their lives.<sup>15</sup> If the goal is to promote people's welfare, and other things being equal, a regulation that saves 500 life-years (and, let us say, twenty-five people) is better than a regulation that saves 50 life-years (also, let us say, twenty-five people). My most modest suggestion, then, is that in producing regulatory impact analyses,<sup>16</sup> agencies should do a sensitivity analysis in which they inquire into life-years as well as lives – and take account of that sensitivity analysis in deciding what to do. My more ambitious suggestion is that at least in general, cost-benefit analysis should be conducted with primary attention to VSLY rather than VSL.

In making these arguments, I intend to respond to two very different sets of critics of VSLY. The first set consists of economists and economically-oriented lawyers.<sup>17</sup> They urge that CBA is properly based on willingness to pay (WTP) for the various benefits of regulation. On this view, policymakers should use different values for old people and young people if and only if WTP studies show such a disparity.<sup>18</sup> Indeed, this view has been endorsed by the Office of Management and Budget itself.<sup>19</sup> Against this view, I urge

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[https://www.lexis.com/research/retrieve?\\_m=b9948ff37008fac2330e2ce6a66f5e57&docnum=4&\\_fmtstr=FULL&\\_startdoc=1&wchp=dGLbVtz-ISlWk&\\_md5=aaa30b6f202f7e1e23717bc35a2806b1](https://www.lexis.com/research/retrieve?_m=b9948ff37008fac2330e2ce6a66f5e57&docnum=4&_fmtstr=FULL&_startdoc=1&wchp=dGLbVtz-ISlWk&_md5=aaa30b6f202f7e1e23717bc35a2806b1).

<sup>13</sup> See Office of Management and Budget, Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations, 68 Fed. Reg. 5521 (Feb. 3, 2003).

<sup>14</sup> See Hahn and Wallsten, *supra* note.

<sup>15</sup> See Matthew D. Adler and Eric A. Posner, Rethinking Cost-Benefit Analysis, 109 Yale L J 165 (1999). Throughout I use the idea of welfare in a nonsectarian sense. I do not mean to identify the idea with the utilitarian account, and I do not mean to reduce welfare to "happiness," narrowly defined. As I use the term, it is agnostic on the controversial normative questions. For discussion, see Amartya Sen, *Development As Freedom* (1999). I believe that without resolving those questions, it is possible to show that VSLY is preferable to VSL, and more generally to show that WTP is an inadequate proxy for welfare in many circumstances.

<sup>16</sup> As required by Executive Order 12866, 3 CFR 638 (1993).

<sup>17</sup> See, e.g., Anna Alberini et al., Does the Value of a Statistical Life Vary with Age and Health Status? Evidence from the United States and Canada (unpublished manuscript 2002).

<sup>18</sup> See *id.*

<sup>19</sup> See 68 Fed. Reg. 5521 (Feb. 3, 2003), suggesting that those who endorse VSLY assume "that the public is willing to pay more money for a rule that saves an average of 10 life years per person than a rule that

that especially in this context, WTP is a bad proxy for welfare. Economists who insist on WTP are treating that measure as important or even decisive in itself. This is a mistake, because WTP is only an administrable proxy for welfare, to be rejected when we have good reason to believe that the proxy is unreliable.

The second set of critics is concerned with a principle of equality. These critics believe that each life should count for no more and no less than one. They think that VSLY violates the equality principle, because it treats elderly people as if they were worth less (literally) than younger people. They believe that the VSLY approach is a form of age discrimination. This argument, I suggest, is rooted in a generally sound moral intuition: Sometimes the pursuit of welfare should be constrained by considerations of justice. It is at least imaginable, for example, that one hundred white people would receive more welfare from the elimination of a risk of 1/100,000 than would one hundred African-Americans. But even if this is so, government should not create an “African-American death discount.” The reason is that the welfare difference – assuming that it exists – is a product of past and present injustice. By contrast, injustice is not the source of the welfare difference between the protection of one hundred children and the protection of one hundred elderly people. In fact the use of a uniform VSL is best taken as a form of discrimination against younger people, because it treats each of their anticipated years as less valuable than those of older people. As I shall also show, use of VSLY does not run afoul of the principles that animate the prohibition on age discrimination.

The discussion has two broader implications. First, it suggests that economists and policymakers should not take the willingness to pay criterion too seriously, and they are in danger of doing precisely that.<sup>20</sup> As a measure of welfare, that criterion has several advantages, above all in circumstances in which regulation amounts to a forced exchange, requiring people to “buy” a benefit that they may or may not find it in their interest to buy. But in some contexts, no forced exchange is involved, because the beneficiaries of regulation do not have to pay for it. And in some contexts, willingness to pay is a poor proxy for welfare. In such contexts, regulators should abandon it and think about welfare directly.<sup>21</sup> I attempt to bring recent work on people’s mispredictions of welfare to bear on that question.<sup>22</sup> Second, the discussion suggests that while promoting welfare is the basic goal of government regulation, it is possible to specify a set of justice constraints on the pursuit of welfare. Those constraints support some, but not all, of the moral reservations about CBA and WTP that are stressed by their critics.

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saves one year per person.” What I will suggest here is that the argument for VSLY depends on no such assumption.

<sup>20</sup> See *id.*

<sup>21</sup> Of course this is a difficult task, and I offer some thoughts here only about the easy cases. For general discussion, see Daniel Kahneman, et al., *Back to Bentham? Explorations of Experienced Utility*, 112 Q. J. Econ 375 (1997).

<sup>22</sup> See *id.*; Daniel Kahneman, *A Psychological Perspective on Economics*, 93 Am. Econ. Rev. 162 (Papers and Proceedings) (2003); George Loewenstein and David Schkade, *Wouldn't It Be Nice? Predicting Future Feelings*, in Daniel Kahneman, Ed Diener, and Norbert Schwarz, eds, *WellBeing: The Foundations of Hedonic Psychology* 85 (Russell Sage 1999).

The remainder of this essay is organized as follows. Part II discusses the economic approach to the choice between VSL and VSLY. It urges that VSLY is a better way of assessing welfare than VSL, and that the results of WTP studies, on that question, are not determinative or even relevant. Part III explores ethical and distributive constraints on the promotion of welfare through regulation. It shows that the relevant constraints do not argue against the use of VSLY and that if any illicit discrimination is involved, it is in the use of VSL, not VSLY. Part IV briefly identifies some options for policy. Part V is the conclusion.

## **II. Economics**

What are the claims of willingness-to-pay? Why should we care about WTP at all? The only reason to use WTP, as a measure of benefits, is that it is the most administrable way to measure the welfare gains of one or another option.<sup>23</sup> If certain people are willing to pay \$25 for a book, but not \$25.01, we can conclude that the welfare gain of that book, for those people, is properly measured at \$25. If people, in a certain domain, are willing to pay \$10 to eliminate a statistical risk of  $1/500,000$ , the welfare benefit of eliminating that risk might plausibly be measured at \$10 (and hence VSL, in that domain, is plausibly measured at \$5 million). At least this is a place to start.

### **A. Welfare and WTP**

As a measure of welfare, the WTP criterion has the advantage of administrability.<sup>24</sup> While it is not always simple to calculate WTP, market measures and contingent valuation studies provide a great deal of information. And there is certainly a connection between WTP and welfare. The more that someone is willing to pay for a benefit, the more likely it is that the benefit would actually promote that person's welfare. But if welfare is our guide, the WTP criterion might be criticized on several grounds. Consider a few:

1. Willingness to pay is dependent on ability to pay. As a result, poor people might be unwilling to pay much for a regulatory benefit even though they would greatly gain from it, and wealthy people might be willing to pay a great deal for a regulatory benefit even though they would receive very little from it.
2. Some people lack relevant information, and hence they might not be willing to pay for goods that would, in fact, produce significant welfare benefits for them. They might also be willing to pay a great deal for goods that would not, in fact, produce significant welfare benefits for them. It is well-documented

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<sup>23</sup> See Adler and Posner, *supra* note.

<sup>24</sup> The point should not be overstated. Studies of WTP show a great deal of variability. See Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 *Geo. L.J.* 2255 (2002) (showing a range from \$1 million to \$14 million), and a recent study, based on 1990s data, suggests that the current figure of \$6.1 million might well be doubled. See W. Kip Viscusi, *Racial Differences in Labor Market Values of A Statistical Life* (2003), available on [ssrn.com](http://ssrn.com). (finding values as high as \$15.1 million in the case of white males).

that people's welfare judgments at time of decision ("anticipated welfare") do not always match their experience ("experience welfare").<sup>25</sup>

3. People's preferences might have adapted to deprivation or injustice.<sup>26</sup> Hence they might be unwilling to pay anything for goods from which they would benefit. If government relies on WTP, it will not engage in actions that might turn out to be welfare-promoting.
4. Measures of WTP rely on hedonic pricing or contingent valuation studies that elicit monetary amounts from individuals, with the apparent assumption that such individuals will be paying those amounts whether or not other people are doing so as well.<sup>27</sup> But people care about their relative economic position, not simply their absolute economic position, and hence they would be likely to be willing to pay significantly more if they could be assured that others would be paying for the regulatory benefit as well. The reason is that when everyone is paying for the benefit, people can maintain their relative economic position while also receiving the benefit. Because existing studies do not take account of this point, they might undervalue regulatory protections.<sup>28</sup>

I do not intend to come to terms with these problems here. I focus on the difference between VSL and VSLY while bracketing the more general challenges to WTP itself. But it is noteworthy that actual agency use of WTP does not run afoul of most of these problems.<sup>29</sup> The most important point here is agencies do not give a lower VSL for poor people than for rich people; they use a uniform figure.<sup>30</sup> My central claim is that to the extent that WTP should be used by government officials, it is only because it is the best available proxy for the welfare effects of various courses of action.

## B. Asking the Wrong Question

Now let us turn to the question of lives vs. life-years. For many economists, the argument for life-years, as opposed to lives, stands or falls on WTP.<sup>31</sup> Suppose, for example, that people who are 65 and over are not willing to pay less, to eliminate a risk of 1/500,000, than are people who are 40 and under. If reliable studies show that the two figures are equivalent, it might seem to follow that lives are what matters, and not life-

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<sup>25</sup> See, e.g., Daniel Kahneman and J. Snell, Predicting Changing Taste: Do People Know What They Will Like?, 5 *J. Behavioral Decision Making* 187 (1992); George Loewenstein and David Schkade, Wouldn't It Be Nice? Predicting Future Feelings, in Daniel Kahneman, Ed Diener, and Norbert Schwarz, eds, *WellBeing: The Foundations of Hedonic Psychology* 85 (Russell Sage 1999).

<sup>26</sup> See Jon Elster, *Sour Grapes* (1983); Martha Nussbaum, *Women and Human Development* (2002); Amartya Sen, *Commodities and Capabilities* (1985).

<sup>27</sup> See Robert Frank and Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position*, *supra* note.

<sup>28</sup> See *id.*

<sup>29</sup> See Matthew D. Adler and Eric A. Posner, Implementing Cost-Benefit Analysis When Preferences Are Distorted, in *Cost-Benefit Analysis* 269 (Matthew D. Adler and Eric A. Posner eds. 2001).

<sup>30</sup> See *id.* Note that it would be reasonable to do exactly that in the context of forced exchanges. Unless there is some informational problem, poor people are not helped when regulation forces them to pay \$200 for a benefit that is worth only \$50 to them. In such cases, perhaps government should impose regulation but subsidize poor people to ensure that they do not have to pay for it. I return to this point below.

<sup>31</sup> See, e.g., V. Kerry Smith, *Do the "Near" Elderly Value Mortality Risks Differently?* (unpublished manuscript 2002).

years – or that the two measures would produce equivalent numbers. On this view, the central issue is whether people of different ages show different WTP to reduce statistical risks.

1. WTP and age. Consider a recent study that attempts to resolve exactly that issue.<sup>32</sup> The study asked respondents in the United States and Canada to state their willingness to pay for risk reductions of 1-in-1000 and 5-in-1000. Demographic information was collected, so that the authors could hold constant relevant variables (such as health and wealth). A key finding is that in the United States, age had no impact on WTP. In the 1-in-1000 condition, VSL estimates exceeded \$4 million; the estimates were less than half that in the 5-in-1000 condition.<sup>33</sup> But in both cases, older people did not show a lower WTP than younger people. For Canada, age generally had no effect, but with one exception: people over 70 were willing to pay about one-third less than others for risk reduction.<sup>34</sup> The authors conclude that in general, their results “support current practice with regard to treatment of age,”<sup>35</sup> because they suggest that WTP does not vary across the lifespan.

Or consider a similar study based on labor market data.<sup>36</sup> The simple result is that older workers require significantly higher, not lower, compensation to accept increase in fatality risks on the job. For the full sample, the estimated VSL is \$5.31 million, well within the range of existing EPA figures.<sup>37</sup> The authors actually find that VSL increases with age, from \$7.4 million for workers between 51 and 55, to \$10.2 million for workers between 56 and 60, to \$14 million for workers between 61 and 65.<sup>38</sup> The implication is that regulatory policy should give a higher monetary value to statistical risks faced by older people. Instead of a “senior death discount,” regulators should use a “youth death discount.” Whether or not these particular findings are convincing, it is generally agreed, among economists, that the authors are asking the right question.

But it is here that they are wrong. The reason is that whatever WTP, the welfare gain from saving (say) 1000 people who are between forty and sixty-five is unquestionably higher than the welfare gain from saving (say) 1000 people who are 65 and over. As a matter of simple logic, more welfare is produced by the former than the latter. If WTP is the same for both, the problem lies with WTP, as a measure of welfare, rather than with the use of the life-years criterion. Economists who believe that WTP is decisive are mistaking an administrable measure of welfare, a mere tool, for welfare itself. They neglect the fact that WTP is a pragmatic instrument, useful for many purposes, but one that should not be determinative when it can be shown to be an implausible measure of welfare. It is preposterous to suggest that the welfare gains of

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<sup>32</sup> See Anna Alberini et al., Does the Value of a Statistical Life Vary with Age and Health Status? Evidence from the United States and Canada (unpublished manuscript 2002), available at [http://www.rff.org/disc\\_papers/PDF\\_files/0219.pdf](http://www.rff.org/disc_papers/PDF_files/0219.pdf).

<sup>33</sup> See id. at 14.

<sup>34</sup> See id. at 16.

<sup>35</sup> Id. at 17.

<sup>36</sup> See Smith et al., *supra* note, available at [http://www.rff.org/valuinghealthoutcomes/VHO\\_Readings.htm](http://www.rff.org/valuinghealthoutcomes/VHO_Readings.htm).

<sup>37</sup> Id.

<sup>38</sup> Id. at 15.

saving fifty people over 60 are equal to the welfare gains of saving the same number of people under 40.

2. Welfare vs. WTP. I am suggesting that logic is sufficient to establish that WTP is not decisive on the question whether, other things being equal, more welfare is produced by a regulation saving hundreds of life-years rather than one that saves dozens. WTP is beside the point. Many economists and economically oriented readers will find this a contentious claim. To see how it might be plausible, let us turn to two reasons why WTP might not map onto welfare. The first involves poor predictions, in advance, about the welfare effects of options. The second involves distortions introduced by wealth.

(a) Mispredicted welfare. A growing body of literature shows that at the time of decision, people often mispredict the welfare effects of one or another option.<sup>39</sup> For example, assistant professors often exaggerate the effects of a denial of tenure on their well-being a year after the decision.<sup>40</sup> In general, people overestimate the adverse consequences of setbacks, to which they are frequently able to adapt.<sup>41</sup> It follows that in some contexts, WTP will mispredict the lived consequences of choices. “The evidence of grave deficiencies in taste predictions appears to pose a significant challenge to many applications of the rational-agent model.”<sup>42</sup> What I am adding here is that WTP will be a poor proxy for welfare in cases in which we have good reason to suppose that underestimation or overestimation are likely. Of course government officials should be reluctant to second-guess citizens, but in some cases, the second-guessing is well-justified.

Consider an example: A reliable contingent valuation study shows that people are willing to pay far more to prevent a long cancer death than to prevent a sudden unanticipated death, with death from heart disease falling somewhere in the middle.<sup>43</sup> As it happens, the median WTP for a sudden unanticipated death is half the median WTP for a cancer death.<sup>44</sup> Must these numbers be decisive for purposes of policy, assuming that the contingent valuation study is reliable<sup>45</sup>? I suggest that they should not be if we have reason to believe that the WTP figures are not accurately measuring welfare. And is it even plausible to think that the “cancer premium” is so high that it actually doubles the cost of death? Is it reasonable to think that a death from cancer is actually twice as bad as a death that is sudden and unanticipated? To be sure, a degree of pain and suffering typically accompanies cancer, but it is not easy to defend the set of (exotic) values that would lead to the conclusion that the relevant pain and suffering is as bad as death itself.<sup>46</sup> I believe that WTP is not measuring welfare here, and that the inflated numbers

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<sup>39</sup> See Kahneman, *supra* note; Loewenstein and Schkade, *supra* note.

<sup>40</sup> See Daniel Gilbert et al., Immune Neglect: A Source of Durability Bias in Affective Forecasting, 75 *J Personality and Social Psych* 617 (1998).

<sup>41</sup> See Loewenstein and Schkade, *supra* note.

<sup>42</sup> Kahneman, *supra* note, at 165.

<sup>43</sup> See George Tolley et al., Valuing Health for Policy: An Economic Approach 342 (1994).

<sup>44</sup> *Id.*

<sup>45</sup> For an affirmative answer, see Revesz, *supra* note.

<sup>46</sup> If one believed that death itself is not terribly important, and that pain and suffering matter a great deal, then a huge cancer premium might well make sense. And undoubtedly some people have this exotic set of

for cancer deaths is a product of an intuitive recoil at the idea of cancer, one that leads to unrealistically high monetary values.

Perhaps this example can be disputed. If so, consider the fact that according to some studies of WTP, a curable cancer is valued at \$2.3 million, more than a third the value of a statistical life.<sup>47</sup> Suppose that these studies are reliable and that \$2.3 million really does capture people's WTP for a curable cancer.<sup>48</sup> Is it plausible to think that the welfare loss from a curable cancer is more than a third of the welfare loss from death? More likely, the frightening idea of "cancer" is driving people's judgments, in a way that leads to a WTP that does not accurately measure the welfare loss from a curable cancer. This is an example of a situation in which "decision utility" (anticipated utility at the time of decision) does not match "experience utility" (the actual utility of lived experience).<sup>49</sup> There are many other illustrations, as, for example, when people show a high WTP to avoid an injury that is not so terrible in actual experience.<sup>50</sup> In short, WTP is sometimes a poor proxy for welfare.

(b) Wealth distortions. Consider a different illustration of the potential disparity between WTP and welfare, a disparity that comes from wealth. Donald Trump is willing to pay \$500 to eliminate 1/50,000 risk of having migraine headaches for the next year, whereas I am willing to pay only \$25 to eliminate the same risk. But the difference stems only from differences in wealth; the welfare loss, from migraine headaches, would be the same for the both of us. At the social level, suppose that a reliable contingent valuation study shows that people who earn less than \$30,000 per year are willing to pay far less, to eliminate a fatality risk of 1/500,000, than people who earn more than \$100,000 per year. Would it follow that officials should adopt a lower VSL for relatively poor people than for relatively wealthy ones? If welfare is the focus, this would not follow.<sup>51</sup> It does not follow, from the fact that poor people are willing to pay less, that poor people would benefit less than wealthy people, or that they receive less welfare from their own lives than wealthy people do. So long as welfare is the foundation for analysis, the disparate numbers, in the example I am giving, point out a problem with the WTP criterion as a measure of welfare.

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values. All I am suggesting is that the people who give the relevant answers in contingent valuation studies are most unlikely to endorse those particular values.

<sup>47</sup> See Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 *Georgetown L J* 2255 (2002).

<sup>48</sup> Note that WTP is often labile and ill-formed, very much dependent on the context of the question. See Cass R. Sunstein and Richard H. Thaler, *Libertarian Paternalism Is Not An Oxymoron*, *U Chi L Rev* (forthcoming 2003). I am putting that possibility to one side for now. The general claim here is that even when WTP is stable and well-formed, it might not capture the welfare that comes from one or another option. For relevant discussion, see Kahneman et al., *Back to Bentham*, *supra* note.

<sup>49</sup> See Daniel Kahneman et al., *Back to Bentham? Explorations of Experienced Utility*, 112 *Q. J Econ* 375 (1997).

<sup>50</sup> See the discussion in Edward J. McCaffery, Matthew Spitzer, and Daniel Kahneman, *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 *Va. L. Rev.* 1341, 1354-73 (1995) (experimental finding that willingness to pay is systematically lower than willingness to accept for pain and suffering). The most important point here is that the experience of an injury is often less bad, because more adaptation is possible, than people anticipate in advance. See *id.*

<sup>51</sup> I am putting to one side the issue of forced exchanges, taken up below.

This example is hypothetical, but a recent study of market behavior produces comparable numbers.<sup>52</sup> W. Kip Viscusi finds that African-American males have a significantly lower WTP than white males: \$7.7 million versus \$15.1 million.<sup>53</sup> He also finds that African-American females have a lower WTP than white females: \$8.7 million versus \$11.3.<sup>54</sup> Thus the overall VSL for the white sample is \$13.4 million, whereas the overall VSL for the African-American sample is \$9.3 million, and the VSL for the male sample is \$15.1, much higher than the VSL of \$11.3 for the female sample.<sup>55</sup> If WTP is the basis for government policy, agencies should be assigning a much higher VSL for whites and men than for African-Americans and women. Viscusi himself does not reach this conclusion. He says that “because of differences in market opportunities, it is inappropriate to attribute the observed differences to a greater willingness to black workers to bear risk.” In any case these numbers do not suggest that when regulatory programs save lives, African-Americans and women gain less, in terms of welfare, than whites and men. By itself, the lower WTP demonstrates no such thing.

### **C. Regulations as Forced Exchanges**

To be sure, the latter examples should be analyzed differently if the cost of the regulatory benefit would be wholly paid by those who receive it. Suppose, for example, that the government is proposing to reduce existing levels of arsenic in drinking water, and that the cost of the reduction would be reflected in increased water bills.<sup>56</sup> Suppose too that under the proposed regulation, poor people would have to pay more than their WTP to obtain the reduction; suppose too that they have adequate information. If so, then it is hardly clear that government is doing them any favors by forcing them to obtain that benefit. If information is not absent, why should government require poor people to pay more than they are willing to pay? The same point applies to racial differences. It is imaginable that white people, as a class, are willing to pay more for Volvos than are African-Americans; it is also imaginable that white people are willing to pay more for CDs by Bing Crosby. Government would do African-Americans no favors by compelling them to purchase safe cars or CDs on terms that seem to them undesirable.

Many critics of WTP, and of economic approaches to regulation, ignore this point. But economists and economically oriented critics read it for more than it is worth. They tend to think that if the cost of the regulatory benefit exceeds the WTP of beneficiaries, then it should not be provided. The problem is that the cost of the benefit is often borne by taxpayers and consumers. If so, it might well be that the benefit can be justified on welfare grounds. When near-poverty produces low WTP, we cannot conclude that in terms of welfare, the near-poor would gain little from the benefit in question.

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<sup>52</sup> See W. Kip Viscusi, *Racial Differences in Labor Market Values of A Statistical Life* (2003), available on [ssrn.com](http://ssrn.com).

<sup>53</sup> See *id.* at 29.

<sup>54</sup> *Id.*

<sup>55</sup> *Id.* at 25.

<sup>56</sup> The example is realistic. See Cass R. Sunstein, *The Arithmetic of Arsenic*, *supra* note.

## D. Welfare and Life-Years

Now let us turn to the question of life-years. If a program would save 100 people who are forty years old (with, let us imagine, a life expectancy of eighty), it is preferable to a program that would save 100 people who are seventy (with the same life expectancy). It does not matter if the seventy-year-olds would be willing to pay the same as the forty-year-olds. After all, the seventy-year-olds were themselves forty once, and it would be astonishing if the welfare gain, to each of us, of ten more years of life were equivalent to the welfare gain of forty more years of life. If WTP studies find a similar or equivalent amount in the two settings, the problem lies with the WTP criterion, which is not properly measuring welfare in this context.<sup>57</sup>

Is a particular kind of cognitive error involved, and might that error account for these results<sup>58</sup>? This is hard to demonstrate.<sup>59</sup> But consider the following question:

*You are twenty years old. You do not know how long you will live.*

*(a) How much would you be willing to pay to eliminate, starting at twenty-five and for the rest of your life after that point, a 1/50,000 risk of death?*

*(b) How much would you be willing to pay to eliminate, starting at sixty-five and for the rest of your life after that point, a 1/50,000 risk of death?*

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<sup>57</sup> There is an obvious relationship between these claims and the “population paradoxes” that have received much attention in utilitarian theory. See Derek Parfit, *Reasons and Persons*. The source of the problem lies in the fact that some utilitarians are tempted to think that we should maximize the number of people in the world. On this view, the more people, the better, because more people means more welfare. But this idea raises paradoxes if a dramatic increase in the number of people significantly decreases the welfare of each person while also adding to the welfare of the universe as a whole. The error in this view is that it assumes that the universe should be seen as a kind of machine whose welfare we should attempt to maximize. But the universe is no such machine. The welfare that counts is the welfare of actual people. It is therefore better to have six billion people with excellent lives than twelve billion people with merely adequate lives. Note that this claim does not mean that living people have no obligations to future generations, which will consist of actual people, who therefore have a claim to our moral attention simply because they will be actual.

<sup>58</sup> A speculation: Older people’s WTP might be surprisingly high simply because they are relatively fearful (perhaps because they have few years left, perhaps for some other reasons). Younger people might show a surprisingly low WTP because they are relatively fearless. The effects of excessive and insufficient fear might overcome the difference that would be expected in light of the number of remaining years. I doubt that this explanation really accounts for the data, but it is possible that the high WTP numbers of older people, see Smith et al., *supra* note, is a product of an age-related form of risk aversion. In turn it is not clear whether this is a taste or instead a kind of cognitive error.

<sup>59</sup> Compare the idea of “evaluability,” illuminatingly discussed in Chris Hsee, *The Evaluability Hypothesis: An Explanation of Preference Reversals Between Joint and Separate Evaluation of Alternatives*, 46 *Org Behavior and Human Decision Processes* 247 (1996). The basic idea here is that in separate evaluation, people’s judgments are different from what they are in joint evaluation, because some factor can be evaluated only or best in a comparative context. An example: How much would you pay for a dictionary with 100,000 words and an torn cover? For a dictionary with 40,000 words and an intact cover? In separate evaluation, people are willing to pay more for the latter, but in joint evaluation, the former is more popular. In joint evaluation, it is reasonable to hypothesize that people would choose, for themselves, a program that eliminate a 1/100,000 chance when they are forty over a similar program when they are sixty.

It would be astonishing if the answer to (a) is equivalent to the answer to (b); that would be a preposterous result. And the difference is highly likely to reflect the fact that (a) provides more risk-free years, and not merely the discounting of future years.<sup>60</sup> In answering such questions, reasonable people take account of the fact that the welfare benefit of (a) is significantly higher than the welfare benefit of (b). In fact (a) literally dominates (b): It provides everything that (b) does, and forty more years of reduced risk as well.

It remains to explain why the WTP criterion would not pick up the welfare differences. An obvious possibility is wealth itself: If older people have more income than younger people, their WTP will be higher, and for reasons that have nothing to do with welfare. But some of the studies, finding no age differences in WTP, control for wealth.<sup>61</sup> Or it might be that older people show a comparatively high WTP – as high as or higher than that of younger people – simply because they have fewer years left in which to spend their money. Suppose, for example, that people over sixty are willing to pay \$100 to eliminate a risk of 1/50,000, whereas people under forty are willing to pay only \$75 to eliminate such a risk. It may be that the younger people want to use their disposable income on other things, such as savings, whereas for older people, the reduction of risk is a high priority.

This possibility is related to another one: The comparatively high WTP for older people might reflect the preciousness of the relatively fewer years that remain. Consider two questions:

- (a) You are 75 years old. How much would you be willing to pay to avoid a 50 percent chance of dying one year earlier than you otherwise would?*
- (b) You are 25 years old. How much would you be willing to pay to avoid a 50 percent chance of dying one year earlier than you otherwise would?*

It is easily imaginable that question (a) would produce higher WTP than question (b), for respondents answering hypothetically, and even more predictably for respondents who are 75 and 25 respectively. It may well be that the perceived value of any given year increases, for some or many, when the number of remaining years declines. For people who are 25, the prospect of losing one year of life might not loom terribly large, and for people who are 75, that loss is probably a matter of major importance. But should regulators set policy with a view toward this asymmetry? That would be a puzzling conclusion. The 75-year-old was once 25, and if all goes well, the 25-year-old will eventually be 75. As a general rule, people should certainly be permitted to allocate their resources as they wish over their life-span; if old people want to spend much of their money to reduce low risks of death, and young people prefer to ignore those risks, government need not intervene.<sup>62</sup> But a year of life is a year of life, and a person who dies

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<sup>60</sup> On that issue, see Revesz, *supra* note.

<sup>61</sup> See Alberini et al., *supra* note.

<sup>62</sup> If there is a serious cognitive error, however, paternalism might be justified. See Christine Jolls et al., A Behavioral Approach to Law and Economics, 50 *Stan. L. Rev.* 1471 (1998).

at 79 rather than 80 dies at 79 rather than 80 whether they were willing to pay too little to eliminate a 50% risk at age 75 or age 25. There is no reason for government to encode the disparate answers to (a) and (b) into law.

In some cases, the absence of age-related differences in WTP might well be a product of the contingent valuation setting. Some studies of contingent valuation show “scope neglect”: people are willing to pay the same to protect 1000, 10,000, and 100,000 migratory birds.<sup>63</sup> The absence of an age effect may reflect a similar phenomenon. It is possible that in contingent valuation studies or in market behavior, the number of years is “telescoped” into a kind of single unit, called “the rest of life.” Hence the amount that people are willing to pay for a 1/500,000 risk of losing “the rest of life” might not much vary across the life-span. For present purposes, it is not necessary to choose among these various explanations. My central points are that there are plausible reasons that WTP might not decline with remaining life-years, and that if welfare is the focus, the number of life-years matters a great deal no matter what the WTP studies reveal. To focus on WTP is to focus on the wrong question.

### **E. Another Wrong Question**

It might be tempting to respond that the choice between VSL and VSLY should be made not by asking people about their WTP, but by asking them their preferences as between programs that focus on VSL or VSLY. People might be asked if they believe that government should treat each averted fatality as no more and no less than one, or if government should instead consider the age of those whose lives are saved. If it turns out that people prefer VSLY, then we might select appropriate numbers by asking subjects to choose between programs with different amounts for VSLY, or by seeing how people value life-years over the course of a lifespan. It might turn out, for example, that people consider each life-year as equivalent to (say) \$200,000; or perhaps people will value life-years at a special premium when the beneficiaries are either especially old or especially young. In any case, the suggestion would be that policy should be set by consulting not WTP, but the public’s judgments about the appropriate values.

This solution has some intuitive appeal; it seems responsive, as a democracy should be, to citizens’ judgments. But it has two fundamental problems. The first is that people’s answers are highly likely to depend on how the questions are set up. The second is that even if people do have stable answers to such questions, it is unclear that those answers have any moral standing for purposes of policy and law.

1. An analogy. Consider the analogous question of obligations to future generations,<sup>64</sup> a much-disputed problem in regulatory policy.<sup>65</sup> A regulatory system that

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<sup>63</sup> See Daniel Kahneman and Jack Knetch, Valuing Public Goods, 22 J. Env Econ and Mgt. 57 (1992).

<sup>64</sup> See Shane Frederick, Measuring Intergenerational Time Preference: Are Future Lives Valued Less?, 26 J. Risk and Uncertainty 1 (2003).

<sup>65</sup> Richard Revesz, Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives, 99 Col L Rev 941 (1999); Comment, Judicial Review of Discount Rates Used in Regulatory Cost-Benefit Analysis, 65 U Chi L Rev 1333 (1998).

attempts to track people's preferences would try to measure intergenerational time preferences, that is, to elicit people's judgments about how to trade off the protection of current lives and future lives. Hence an important question, asked in many debates about the issue, is whether people actually make such judgments and whether they can be elicited. And indeed, an influential set of studies finds that people value the lives of those in the current generation far more than the lives of those in future generations.<sup>66</sup> From a series of surveys, Maureen Cropper and her coauthors suggest that people are indifferent between saving one life today and saving 45 lives in 100 years.<sup>67</sup> They make this suggestion on the basis of questions asking people whether they would choose a program that saves "100 lives now" or a program that saves a substantially larger number "100 years from now."<sup>68</sup>

But it turns out that other descriptions of the same problem yield significantly different results.<sup>69</sup> Here, as in other contexts, it is unclear whether people actually have well-formed preferences with which the legal system can work.<sup>70</sup> For example, most people consider "equally bad" a single death from pollution next year and a single death from pollution in 100 years<sup>71</sup> -- implying no preference for members of the current generation. In another finding of no strong preference for the current generation, people are equally divided between two programs: one that will save 55 lives now and 105 more lives in twenty years; and one that will save 100 lives now and 50 lives 25 years from now.<sup>72</sup> It is even possible to frame the question in such a way as to find that future lives are valued more, not less, highly than current lives.<sup>73</sup> The most sensible conclusion is that people do not have robust, well-ordered intergenerational time preferences. If so, it is not possible for government to track those preferences, because they are an artifact of how the question is put.

The issue of VSL vs. VSLY is similar on this count. It should be easy to construct questions that would yield a preference for VSL. (*Government is considering a policy that would count the value of elderly people as significantly less than the value of younger people. According to one proposal, for every dollar that most people are worth, people over 70 are worth 53 cents. Do you approve of this proposal?*) It should also be easy to construct questions that would suggest public disapproval of a uniform VSL. (*Would you favor (a) a program that would save one hundred children from dying of a*

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<sup>66</sup> See Maureen Cropper et al., Rates of Time Preference for Saving Lives, 82 Am. Econ. Rev. 469 (1992); Maureen Cropper et al., Preferences for Life Saving Programs: How the Public Discounts Time and Age, 8 J. Risk and Uncertainty 243 (1994).

<sup>67</sup> Id.

<sup>68</sup> Id.

<sup>69</sup> Frederick, *supra* note.

<sup>70</sup> The point is stressed in Cass R. Sunstein and Richard H. Thaler, Is Libertarian Paternalism An Oxymoron?, U Chi L Rev (forthcoming 2003).

<sup>71</sup> Frederick, *supra* note, at 43.

<sup>72</sup> Id. at 44.

<sup>73</sup> Id. at 45. Frederick asked subjects to choose between two programs. The first would become more effective over time, saving 100 lives this decade, 200 lives in the following decade, and 300 lives in the decade after that. The second would become less effective over time, saving 300 lives this decade, 200 lives in the following decade, and 100 lives in the decade after that. Most people preferred the first program, apparently suggesting that future lives are valued more highly. Id.

*fatal cancer at the age of ten or instead (b) a program that would save one hundred and one senior citizens from dying of a fatal cancer at the age of eighty?)* I have conducted a small survey myself, asking University of Chicago law students whether they would favor a policy that saves twenty people with a median age of forty or one that saves thirty people with a median age of sixty-five. By a majority of about two-to-one (fifty-three to twenty-five), the former policy was favored. But as in the context of harms to future generations, highly variable responses should be expected in accordance with the nature of the question. It is doubtful that people have stable, well-considered judgments on the issue.

2. Why the question is wrong. The more fundamental problem is that people's judgments on this question should not be determinative for purposes of policy or law. Suppose, for example, that a relevant population concluded that it would prefer to save one hundred white lives to one hundred African-American lives -- or that it would prefer to abandon cost-benefit analysis altogether, finding both VSL and VSLY morally unacceptable. What kind of standing would those judgments have? Or suppose that existing generations concluded that a current life is worth fifty lives in 2080. Why would that conclusion count for purposes of policy? What matters is not the fact of those judgments, but their legitimacy and their sense. If we care about WTP, it is only because WTP is a proxy for welfare, and because welfare deserves (some) moral standing as such. But eliciting people's judgments, on future generations or VSL vs. VSLY, has no such justification.

To be sure, those judgments deserve consideration and respect if they are reflective. And it is always possible to ask: Who will assess the legitimacy and sense of citizens' judgments? This is a reasonable question, and it is certainly possible to doubt the legitimacy and sense of the assessor. But ours is a deliberative democracy, one that does not make policy on the basis of opinion polls or snapshots of people's opinions.<sup>74</sup> The idea of relying on surveys of this kind replicates the mistake of those who think that the choice between VSLY and VSL turns on WTP: It too asks the wrong question.

## II. Ethics

A different and more intuitive objection to VSLY is ethical. The question is whether a form of illicit discrimination lies behind a decision to treat the lives of the elderly as less valuable (literally) than those of people who are younger. But illicit discrimination is not involved. In fact the use of VSL is far more plausibly discriminatory than the use of VSLY, because the former treats the remaining life-years of old people as more valuable than the remaining life-years of young people.<sup>75</sup> But to approach this question, let us begin with cases in which ethical constraints on the pursuit of welfare seem most insistent.

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<sup>74</sup> See William Bessette, *The Mild Voice of Reason* (1996).

<sup>75</sup> Note that this is objectionable if, other things being equal, each person's life-year counts for no less and no more than one. It is all the more objectionable if older people are seen as having a larger "stock" of life-years and hence as comparatively "rich" in welfare terms. In that event, the life-years of younger people deserve higher priority on distributive grounds. I do not explore these complexities here.

## A. Ethical Checks: Race and Sex Discrimination

Suppose that we could measure welfare directly through a kind of hedometer. Suppose too that the hedometer does not rely on contentious conceptions of welfare; it is not narrowly limited to pleasure or happiness, and it includes the proper ingredients of welfare however these are defined.<sup>76</sup> Suppose too that the hedometer is able to show that a program that would save fifty white people (from cancer as a result of arsenic in drinking water, for example) will produce greater welfare gains than a program that would save sixty African-Americans (from air pollution in the inner city, for example). Certainly it is imaginable that the welfare gain is higher for programs that protect whites than for programs that protect an equivalent number of African-Americans (though the opposite might also be true). Gender differences are possible as well. Perhaps men flourish more than women (though here too the opposite might be true). If these examples seem too contentious, imagine that there are two social groups, the Flourishing and the Depressed. Members of both groups are easily identifiable, and their present and future welfare is captured in the names of their respective groups. By stipulation, a program that protects the lives of the Flourishing will produce more welfare than one that protects the lives of the Depressed. To sharpen the normative question, stipulate too that the Flourishing are responsible for the depression of the Depressed; that if not for the active efforts of the Flourishing, the Depression would come closer to flourishing too.

Should government devote more resources to the protection of those who would gain more welfare from protection? Most people would find the very question absurd. In cases of these sorts, there is an equality-based check on the pursuit of greater welfare. In fact discrimination of this kind would be unconstitutional. But what is the source of the equality-based check? We should begin by noting that there is nothing inevitable, or neutral, or uncontroversial in the suggestion that government should promote welfare as such. To say that it should do so is itself to take a controversial ethical position. In the context of race discrimination, a central problem is that if African-Americans receive less welfare from their lives than do white people, a large part of the reason lies in social and legal practices, past and present, which help produce that state of affairs. This form of inequality reflects injustice. If government takes the inequality as a kind of given for the purposes of policy, it is compounding the injustice, creating a kind of vicious circle, in which disparities in welfare justify increased disparities in welfare, which in turn justify ever-increasing disparities in welfare. The ethical intuition is simple: Where disparities in the welfare effects of regulatory policies are a product of background injustice, government is properly blocked from taking those disparities into account.

This point has some implications for the debate over the use of quality-adjusted life years in regulatory policy. Insofar as the idea of QALYs is designed to rank health gains along with fatalities averted, there is no problem; reductions in curable cancers, asthma attacks, and chronic bronchitis surely count as gains, whoever receives them. But suppose that people with physical and emotional ailments receive proportionately less

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<sup>76</sup> Hence the term eudaimeter seems to me more fitting but more unruly. See the discussion of eudaimonia in Martha Nussbaum, *The Fragility of Goodness* 142-43, 343-72 (rev. ed. 2001).

welfare from their lives. Should government devote a lower level of resources to protect them? If government should not, it is because the fact that such people receive less welfare is a form of injustice,<sup>77</sup> and government should not compound the injustice through regulatory policies. This problem is not the same as the problem of disparities across lines of race and gender, but it raises related concerns.

## **B. Two Complexities for Equity: Forced Exchanges Again and Taxes vs. Regulation**

But there are two natural rebuttals to this argument, familiar refrains in the economic analysis of law.

1. Recall that some kinds of regulation amount to forced exchanges: People have to bear the cost of the regulatory benefit. If African-Americans would have (say) a \$6 million VSL, and if they are adequately informed, government does them no favors by assigning a \$8 million VSL, giving them a benefit for an amount for which they are (rationally) unwilling to pay. Hence the equality-based objection to WTP is weak if used as a defense of a high VSL in cases in which the purported beneficiaries of regulation also have to pay for it. But economically oriented analysts should not make too much of this problem. Sometimes those who benefit from regulation pay only a fraction of its cost. And when a forced exchange is not in the interest of the purported beneficiaries of regulation, the best response is not necessarily to do nothing. Instead of a forced exchange, government might provide a subsidy – in the form, for example, of a program that delivers benefits while relieving the beneficiaries of the obligation to pay for it.<sup>78</sup> Such a program will be in the interest of those beneficiaries even if it delivers a benefit in excess of their willingness to pay for it.
2. In the face of background injustice, or indefensible inequality, it might be thought that the tax system should be used as a corrective, and that regulation should concern itself solely with promoting welfare.<sup>79</sup> On this view, there is no real problem with a VSL that discriminates on the basis of race or sex. If whites and men stand to gain more welfare, regulatory policy should reflect this fact. The remedy for the indefensible inequality, if it exists, lies in tax and welfare policies that redress it directly. Regulation, in short, should involve maximization; redistributive tax and spending policies, rather than regulation, should be used to promote redistribution.<sup>80</sup> The issue is disputed.<sup>81</sup> But if it

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<sup>77</sup> See the discussion of the natural lottery in John Rawls, *A Theory of Justice* (1973).

<sup>78</sup> See Sunstein, *The Arithmetic of Arsenic*, *supra* note.

<sup>79</sup> See, e.g., David A. Weisbach, *Should Legal Rules Be Used to Redistribute Income?*, 70 *U. Chi L Rev* 439 (2003); Louis Kaplow and Steven Shavell, *Why the Legal System Is Less Efficient Than the Income Tax in Redistributing Income*, 28 *J Legal Stud* 667 (1994); Steven Shavell, *A Note on Efficiency vs. Distributional Equity in Legal Rulemaking*, 71 *Am Econ Rev.* 414 (1981).

<sup>80</sup> See Weisbach, *supra* note; Kenneth J. Arrow et al., *Benefit-Cost Analysis in Environmental, Health, and Safety Regulation* 8 (1996)

were possible to use tax and welfare policies to reduce inequalities between whites and African-Americans, that route should probably be preferred, as an engine of redistribution, that an approach that uses a uniform VSL. But note that a uniform VSL is itself a kind of redistributive strategy (imperfect to be sure),<sup>82</sup> and that there is no broad social effort to combat the inequalities that give rise to the different VSLs that I have described. In the absence of such efforts, government should not use different VSLs on the ground that those nonexistent efforts would be better strategies of redistribution.

### C. Discrimination and Baselines

Thus far I have suggested that considerations of justice constrain the promotion of welfare through regulatory controls. I have used the examples of race and sex discrimination as a way of identifying some principles that are likely to find general acceptance. But is the idea of VSLY morally unacceptable in the same way as a VSL that discriminates on the basis of race or gender? The initial point is that it is hard to argue that **injustice** accounts for the welfare disparity between protection of a thirty-year-old and protection of a sixty-year-old. The disparity comes from the simple fact that younger people have more years left. Now that disparity might itself be an injustice if social practices, or even nature, singled out certain groups of people and gave them shorter lives. Hence VSLY would indeed be problematic if it systematically burdened members of identifiable social groups (an issue to which I will return). But as the VSLY criterion is used, it is demographically neutral in both theory and practice.<sup>83</sup>

Under VSLY, older people are treated worse for only one reason: They are older. This is not an injustice. Every old person was young once, and every young person will be old too (if they receive the chance). If regulatory policy is based on VSLY, every person will, in a sense, be both benefited and burdened, and in exactly the same way. Indeed, every person will be both a beneficiary and a victim of the relevant discrimination. People – the same people -- will be benefited when they are younger and burdened when they are older. It is hard to see how that form of discrimination is illicit. In fact it is not clear that it is a form of discrimination at all. Everyone's life year counts as no less and no more than one.

In an important sense, VSL is discriminatory, not VSLY. VSL discriminates against younger people, simply because it treats each of their years as less valuable than

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<sup>81</sup> See Chris Sanchirico, *Deconstructing the New Efficiency Rationale*, 86 *Cornell L Rev* 1003, 1069 (2001); Chris Sanchirico, *Taxes versus Legal Rules as Instruments for Equity: A More Equitable View*, 29 *J Legal Stud* 797, 820 (2000).

<sup>82</sup> See W. Kip Viscusi, *Risk Equity*, in *Cost-Benefit Analysis 7* (Matthew D. Adler and Eric A. Posner eds. 2001). In the racial context, a uniform VSL can even be seen as a form of affirmative action, in the sense that it gives a "boost" to African-American VSL because of a perception of past social discrimination. Note that the boost also results in a reduction of white VSL, at least if regulators use the median VSL.

<sup>83</sup> There is a possible qualification here if African-Americans (for example) live shorter lives, and if VSLY therefore ensures that African-American lives will be valued, on average, less than white lives. In theory, this is indeed a possible problem. But in practice, regulatory policies that use VSLY do not run into that problem, because they are too coarse-grained to discriminate in this fashion.

those of older people. A program that uses VSL accords far more value to each remaining year of an old person's life than to each remaining year of a young person's life.<sup>84</sup> The point is not purely semantic. Suppose that we conclude that lifetime well-being is what matters, and that other things being equal, policies should not give some people more lifetime well-being than others. A policy that looks solely at VSL will violate this principle. Compare a group of people who die from a certain risk at fifty with a group of people who die from the same risk at seventy. Other things being equal, the latter group has received significantly more lifetime well-being than the former, and VSL forces government to ignore this fact. I am not suggesting that the use of VSL, rather than VS LY, is as objectionable as an approach that values women less than men or African-Americans less than whites. But if anything, an age-neutral VSL is subject to a claim of illicit discrimination, not VS LY.

#### **D. A Note on Age Discrimination**

Do these arguments undermine the widely acceptable principle against age discrimination? If so, the arguments might be thought to have mischaracterized the ethical issues involved – or to have broad and perhaps radical implications. Under the Age Discrimination in Employment Act,<sup>85</sup> employers are forbidden from discriminating against people over forty. They cannot choose a thirty-year-old over a fifty-year-old. Indeed, they cannot discriminate even if they can claim that they are relying on a statistically sound generalization – as sound as those on which employers and others rely every day.<sup>86</sup> It is not acceptable for an employer to conclude that thirty-year-old teachers are more fit, energetic, and creative than fifty-year-old teachers, even if this is generally true, and even if it is difficult, in individual cases, to test creativity before people have started to work.<sup>87</sup> Nor would it be permissible for an employer to adapt the argument I have been defending here. An employer could not say that he wants to hire people who have a large number of life-years left -- even if the employer could say, not implausibly, that he would like employees with many life-years rather than fewer, and even if he could add, also not implausibly, that a life-years approach to hiring does not, in a sense, discriminate against anyone. (Recall that every older person was young once and that every younger person, if lucky, will eventually be older too.) The question, in short, is whether it is possible to defend the use of VS LY over VSL while also accepting the prohibition on age discrimination in employment.

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<sup>84</sup> For a utilitarian, this approach is objectionable because each life-year, other things being equal, is an equal source of utility, and hence a program should prefer more life-years rather than fewer. We could imagine a kind of utilitarian or consequentialist who would give higher priority to the welfare of the least well-off. In this context, who counts as the least well-off? In an important sense, young people fall in that category, because they have not yet had the opportunity to accumulate welfare; older people already have a large welfare "stock." But a resolution of these complexities is not important for my analysis here.

<sup>85</sup> See 29 USC 621-34.

<sup>86</sup> See Samuel Estreicher and Michael C. Harper, *Cases and Materials on Employment Discrimination and Employment Law* 445 (2000). In some narrow circumstances, however, age might be a bona fide occupation qualification. See *Western Air Lines v. Criswell*, 472 US 400 (1985).

<sup>87</sup> See *id.*

That prohibition does not have the same moral standing as the prohibition of race and sex discrimination in employment.<sup>88</sup> But it is easy to see how that prohibition might be justified. Some age discrimination is undoubtedly a product of unthinking prejudice – of a false belief that older people are unable to engage in certain tasks.<sup>89</sup> If prejudice is frequently responsible for age discrimination, perhaps age discrimination should generally be banned, at least if the ban does not have excessive social costs. A supplemental rationale would be that discrimination on the basis of age inflicts an unusual kind of dignitary harm -- one that makes it different from, and worse than, most kinds of employment-related injury. If an employee is fired because he is fifty-five, or not hired for that reason, the psychological and dignitary injury is plausibly worse, even far worse, than that faced by people who are fired or hired for other reasons. At least this point seems to animate the Age Discrimination in Employment Act.<sup>90</sup>

The key point is that whether prejudice or dignitary harm is the basis of the ADEA, the same problems do not raise doubts about the government's use of VSLY. When government uses VSLY, it is not because it is prejudiced against older people or acting on the basis of unreliable stereotypes about them. There is no overgeneralization here. Nor is it easy to show that a dignitary harm, of the sort involved in the employment context, is an issue here. It is one thing to be told, by a specific employer, that you will be fired or not hired because you are too old. It is quite another thing for the government to use an approach to valuation that focuses on VSLY rather than VSL. To be sure, it is possible to characterize such an approach in a way that does inflict dignitary harm. Perhaps some objections to VSLY stem from a perception that this measures values older people less, treating them as “worth” some fraction of younger people. But these objections rest on a highly misleading way of framing what VSLY is all about.

### **III. Policy Implications: A Brief Note**

I have suggested that VSLY is a better measure of welfare gains than VSL. I have also suggested that use of VSLY does not offend any moral prohibition on the pursuit of increasing welfare through regulation. But how, exactly, do these points bear on appropriate policy?

We could imagine a range of possibilities. The most modest would be purely informational: to calculate both VSL and VSLY and to inform the public of the calculations. A mildly less modest approach would be to continue with VSL, but in close cases, to treat VSLY, or the age distribution of the protected population, as a kind of tie-breaker. When CBA produces difficult calls, agencies might be told not to act if the benefited class is mostly elderly, but to do so if the benefited class is mostly young. On this view, the age distribution would be consulted only if the case were otherwise in equipoise. The most ambitious approach would be to abandon VSL and to use VSLY instead. On this view, VSL would be seen as a crude first step toward the more refined

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<sup>88</sup> See Samuel Issacharoff & Erica W. Harris, *Is Age Discrimination Really Age Discrimination? The ADEA's Unnatural Solution*, 72 N.Y.U.L Rev. 780, 783 (1997).

<sup>89</sup> See Estreicher and Harper, *supra* note, at 444-45.

<sup>90</sup> See *id.*

inquiry than VSLY makes possible. A number of intermediate approaches are possible. Perhaps VSL would be the basic foundation for analysis, but a sensitivity analysis would run the numbers with VSLY. Perhaps regulators would have the authority, subject to political constraints, to use one or another number when the circumstances make that decision seem reasonable.<sup>91</sup>

But there is a significant issue here: How is VSLY to be measured? Government might well be inclined to use a uniform dollar figure per life-year, on the theory that this is the best way of combining accuracy with administrability. In fact this is the current practice with respect to VSLY.<sup>92</sup> But what dollar amount? The most natural possibility is to do what is done with VSL: take the median number and apply it quite generally. At least an approach of this kind provides a sensible place to start. My purpose here, however, is not to measure VSLY, but simply to suggest that the common objections to life-years, on economic and ethical grounds, are unconvincing.

### Conclusion

In this essay, I have suggested that the choice between VSL and VSLY should not turn on assessments of willingness to pay. Older people may or may not be willing to pay less to reduce risks than younger people (holding wealth constant). Even if there is no significant difference in WTP along these lines, we should not conclude that the welfare gain of a program that saves old people is equivalent to that of a program that saves young people. In welfare terms, that would be a preposterous position. The problem is that willingness to pay is not adequately measuring the welfare benefits of the program in question. In welfare terms, a program that saves younger people is unquestionably better than one that saves older people, holding all else constant. No sensible person would choose to face a 1/500,000 risk at thirty in preference to facing the same risk at sixty. Life-years, and not only discounting the future,<sup>93</sup> are a large part of the reason.

To be sure, there are ethical constraints on the promotion of welfare through regulatory policy. Government does not legitimately assign a higher VSL to whites than to African-Americans. Any welfare difference, if it exists, is a product of injustice, and government should perpetuate or increase injustice. But there is no such injustice in the difference between the anticipated welfare gain of a program that saves older people and the anticipated welfare gain of a program that saves younger people. In any case VSLY has an important kind of neutrality: It treats everyone's life-years the same. I have also suggested that the claims that underlie the prohibition on age discrimination do not raise

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<sup>91</sup> One implication of the present discussion involves the possibility of legal challenges to the decision to use either VSL or VSLY, and also to particular decisions about how to measure them. Under some statutes, cost-benefit analysis is the basis for decision, and in such cases, the agency's calculations are subject to challenge. See, e.g., *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5<sup>th</sup> Cir. 1991). In light of the present state of uncertainty, it would not be arbitrary for an agency to choose either VSL or VSLY, though there are plausible challenges to both measures. See Sunstein, *The Arithmetic of Arsenic*, *supra* note, for relevant discussion.

<sup>92</sup> Note, however, the recent proposal to use life-years, but with a higher amount for people over sixty-five.

<sup>93</sup> See Richard Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 *COL L REV* 941 (1999).

serious moral questions about the use of VSLY. These points suggest that in principle, VSLY is superior to VSL.

If the analysis here is correct, it has two more general implications. The first is that WTP is a pragmatic tool and no more. Some economists seem to identify WTP with welfare itself – an absurd claim that, if taken seriously, would produce both blunders and injustices. The second involves constraints on the promotion of welfare. While welfare is indeed the basic goal of much regulation, there are constraints on the pursuit of that goal, and these constraints should be specified. Any attempt at specification will be controversial. But however the controversies are resolved, I suggest that the constraints do not apply to a decision to use VSLY rather than VSL. Attacks on VSLY are a product of confusion on the part of both economists and ethicists. Regulators should give it serious consideration.

## Appendix

### Regulatory Impact Statements Using Life-Years or Quality-Adjusted Life Years

FDA final seafood HACCP rule (1995). US Food and Drug Administration: Procedures for the Safe and Sanitary Processing and Importing of Fish and Fishery Products; Final Rule. 60 FR 65095, December 18, 1995. Used monetized QALYs in a primary benefit-cost analysis; QALYs described accurately.

FDA final anti-smoking rule (1996). US Food and Drug Administration, "Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco to Protect Children and Adolescents; Final Rule," 61 FR 44395, August 28, 1996. Used QALYs in a primary benefit-cost analysis.

EPA final ozone and particulate standards for outdoor air quality (1997). ADD citation. Used life years but not QALYs in a sensitivity analysis of benefit-cost analysis.

FDA final mammography rule (1997). US Food and Drug Administration: "Quality Mammography Standards; Final Rule." 62 FR 55851, October 28, 1997. Used a 5-year survival rate approach when measuring benefits, but monetized only lives saved, using the value of a statistical life of \$5 million.

HRSA organ donor final rule (1998). Health Resources and Services Administration: "Procurement and Transplantation Network; Final Rule." 63 FR 16295, April 2, 1998. Used statistical life years valued at \$116,000 per year, but did not use QALYs.

FDA final juice labeling rule (1998). Food and Drug Administration: "Food Labeling: Warning and Notice Statement: Labeling of Juice Products; Final Rule." 63 FR 37029, July 8, 1998. Used monetized QALYs in a primary benefit-cost analysis; QALYs described accurately.

FDA proposed consumer trans-fat labeling rule (1999). US Food and Drug Administration: "Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims; Proposed Rule." 64 FR 62746, November 17, 1999. Used monetized QALYs in a primary benefit-cost analysis; QALYs described accurately.

FDA final shell egg safety rule (2000). US Food and Drug Administration: "Food Labeling, Safe Handling Statements, Labeling of Shell Eggs; Refrigeration of Shell Eggs Held for Retail Distribution; Final Rule." 65 FR 76091, December 5, 2000. Used monetized QALYs in a primary benefit-cost analysis; QALYs described accurately.

EPA Tier 2 Rule (date?).

FDA final juice HACCP rule (2001). Food and Drug Administration: "Hazard Analysis and Critical Control Point (HAACP); Procedures for the Safe and Sanitary Processing

and Importing of Juice; Final Rule.” 66 FR 6137, January 19, 2001. Used monetized QALYs in a primary benefit-cost analysis; QALYs described accurately.

CMS immunization standards final rule with comment (2002). Centers for Medicare & Medicaid Services, “Conditions of Participation: Immunization Standards for Hospitals, Long-Term Care Facilities, and Home Health Agencies.” 67 FR 61808, October 2, 2002. Used \$50,000-\$100,000 cost per year of healthy life saved to monetize benefits, assuming lifespan of 84 years.