Monetizing Lives: (How) Should we do it?

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Context

- Economic analysis of public policy
  - $\rightarrow$ pollution regulations
  - $\rightarrow$ fatality risk-regulation
  - $\rightarrow$ climate change policy
- Cost-benefit analysis (CBA)
- Cost-effectiveness analysis (CEA)

More context

- “For all major Clean Air Act regulations from 1997 to 2020, 70% of the environmental benefits are from fine particulate matter,” and 99% of these “involve monetizing the value of mortality risks” (Viscusi 2024).

- “In the latest generation [social cost of carbon] models, mortality now represents 50%-80% of climate damages using EPA’s monetization approach” (Bressler n.d.).

More context

- US federal regulatory policy—some CEA, some CBA
- US federal climate policy—mostly subsidies from Inflation Reduction Act
- International climate policy—Paris Agreement

So, should we monetize lives?

One (accurate) answer:

> In the end, there’s no alternative.

Second (also accurate IMHO) answer:

> Even in the beginning, there’s no alternative.

Value of a statistical life (VSL)

1. Ask individuals what they are willing to pay to acquire a small reduction in mortality risk (or to accept a small increase in a mortality risk)—e.g. by 1-in-10,000. Suppose this is $1,200.
2. Multiply each of these $1,200 WTPs by 10,000 people (=$12 million).
3. Then this group's **Value of Statistical Life (VSL)** is $12 million.

VSL

The *Value of Statistical Life* is the aggregate willingness to pay for a reduction in mortality risk within a group that can expect one member to die as a result of that risk.

Why care about the VSL?

- The theoretical basis of the VSL is **conventional CBA**.
  - → "A change is an improvement if those who 'win' could fully compensate those who 'lose' and still be better off than they were prior to the change."
- The VSL is used to help determine whether the above condition is met.
- Three important notes:
  - → The relevant compensation is *merely possible* compensation.
  - → In many cases, the question really is whether victims can afford to bribe those who are currently doing them harm.
  - → Since willingness to pay is constrained by ability to pay, VSLs will be income-sensitive.

Standard US Gov't VSLs

- 2002: "Seniors on sale—37% off!"
- Nowadays, US federal cost-benefit analysis uses uniform, **population-average VSLs**.
- Exception: EPA's 2023 social cost of carbon estimates.
  - → Owing to differences in average national income, EPA valued **1 death in the US** as equivalent to **57.6 deaths in Democratic Republic of Congo** [Bressler, personal communication].

EPA's 2023 Methodology (Bressler n.d.)

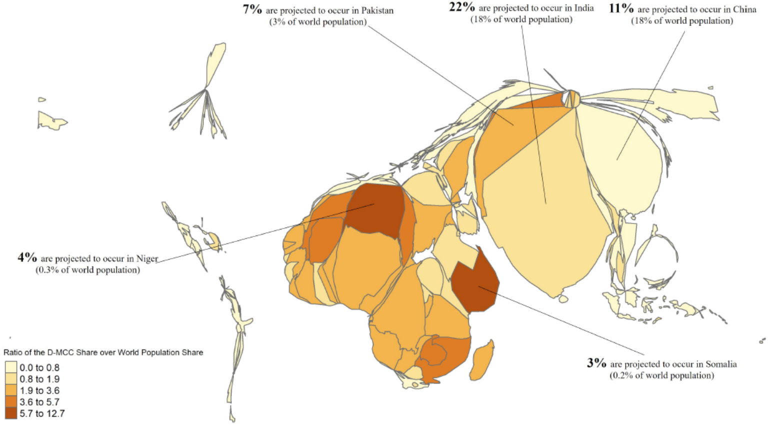

Figure 4 | Chloropleth Cartogram of the Distributional Mortality Cost of Carbon (D-MCC) Country size is proportional to country share of death assuming that future richer populations will be less vulnerable to heat (column 3 of table A.1). India is the largest country in the figure because it has the largest share of deaths. Country color represents how disproportionally countries are impacted relative to their population size. The chart was produced in R version 4.4.3 using the rubber sheet distortion algorithm (Dougenik et al., 1985) in the cartogram package (Jeworutzki, 2016).

EPA's 2023 Methodology (via Bressler n.d.)

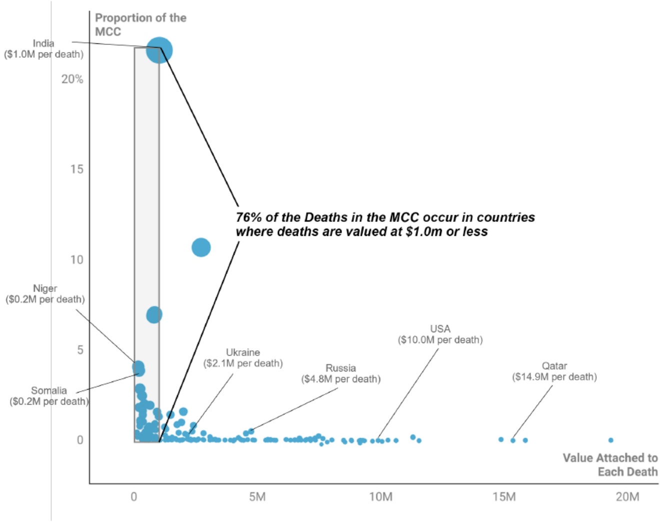

Figure 5 | Relationship between share of deaths in the distributional mortality cost of carbon and the value assigned to each death using an income-elastic VSL. The y-axis shows the share of deaths in the D-MCC by country. The x-axis shows the current period value that is attached to each death based on EPA (2023a). The size of the dots is proportional to the y-axis value.

Three (putative) problems with VSLs

1. Theoretically predicated upon the severely and multiply flawed "potential compensation" test
2. If loyal to that test, then VSLs are income-sensitive
3. If adjusted to be uniform (i.e. income-*in*sensitive), then VSLs cannot be used to implement potential compensation test.

The main alternative to VSLs: Weighted VSLs

If a dollar to a poor person yields more well-being than a dollar to a rich person…

…then VSLs can be weighted to express relative changes in well-being from equivalent risk-reductions.

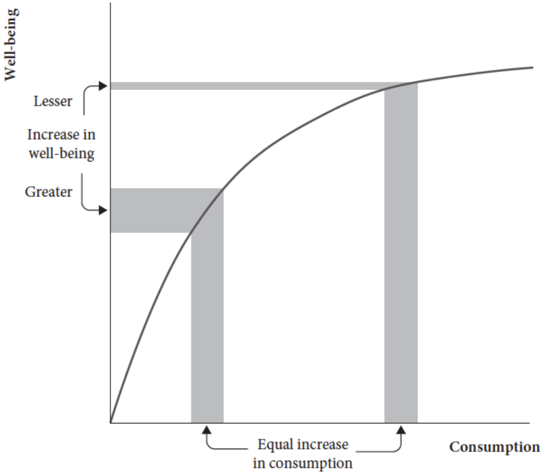

Figure 2.1. A strictly concave well-being function. Adapted from Kolstad et al. 2014, p. 223.

Unweighted vs. weighted VSLs (Adler 2020)

Table 6: Cohort Incomes

	Income: Low	*Moderate*	*Middle*	*High*	*Top*
Age: 20	$8,331	$11,425	$15,686	$21,827	$51,152
30	$22,098	$30,306	$41,607	$57,896	$135,680
40	$28,426	$38,984	$53,522	$74,476	$174,536
50	$28,681	$39,334	$54,003	$75,145	$176,103
60	$24,930	$34,189	$46,939	$65,316	$153,069
70	$19,719	$27,043	$37,128	$51,664	$121,075
80	$14,757	$20,238	$27,784	$38,662	$90,605

Table 3: Cohort VSLs

	Income: Low	*Moderate*	*Middle*	*High*	*Top*
Age: 20	$1,379,256	$2,181,761	$3,391,051	$5,240,842	$15,369,839
30	$3,163,107	$5,005,939	$7,784,849	$12,026,744	$35,235,573
40	$3,254,671	$5,191,073	$8,122,805	$12,593,803	$37,122,979
50	$2,454,637	$3,967,977	$6,274,797	$9,791,316	$29,183,439
60	$1,494,663	$2,458,852	$3,943,065	$6,207,337	$18,786,610
70	$755,476	$1,272,810	$2,080,198	$3,313,544	$10,231,995
80	$330,329	$570,613	$951,330	$1,533,270	$4,826,901

Unweighted vs. weighted VSLs (Adler 2020)

Table 4a: Social value of risk increment according to VSL-CBA
(relative to social value of risk increment for 80-year-old, low-income cohort)

	Income: Low	*Moderate*	*Middle*	*High*	*Top*
Age: 20	4.2	6.6	10.3	15.9	46.5
30	9.6	15.2	23.6	36.4	106.7
40	9.9	15.7	24.6	38.1	112.4
50	7.4	12.0	19.0	29.6	88.3
60	4.5	7.4	11.9	18.8	56.9
70	2.3	3.9	6.3	10.0	31.0
80	1.0	1.7	2.9	4.6	14.6

Table 4b: Social value of risk increment according to utilitarianism
(relative to social value of risk increment for 80-year-old, low-income cohort)

	Income: Low	*Moderate*	*Middle*	*High*	*Top*
Age: 20	8.6	9.9	11.2	12.5	15.6
30	7.4	8.6	9.7	10.8	13.5
40	5.9	6.9	7.9	8.8	11.0
50	4.4	5.2	6.0	6.7	8.6
60	3.0	3.6	4.3	4.8	6.2
70	1.9	2.3	2.7	3.1	4.2
80	1.0	1.3	1.6	1.8	2.5

Weighted Social Costs of Carbon (Prest et al. 2024)

POLICY FORUM

CLIMATE POLICY

Equity weighting increases the social cost of carbon

New government guidelines could transform benefit-cost analysis of US climate policy

By **Brian C. Prest[1], Lisa Rennels[2], Frank Errickson[3], David Anthoff[2]**

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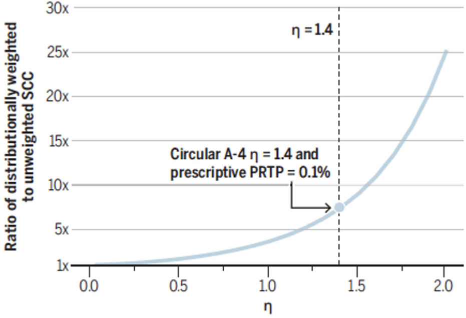

Tentative Conclusions

1. Utilitarian CBA has a stronger theoretical basis than conventional CBA.
2. Utilitarian CBA still allows for monetization, and gives the poorer greater weight than conventional CBA.
3. Utilitarian CBA still allows for unequal valuations of (risk to) lives and deaths.
4. Utilitarian CBA was first allowed in US federal CBAs in Nov. 2023. That authorization was repealed last Friday (Jan 31, 2025).
5. Within the legal/regulatory/political economy infrastructure we have and can hope for in the near/medium term, we will have to continue to monetize lives.
6. We have better and worse ways of doing this. We should use the better ways.
7. At the same time, we also have better and worse ways of *using* those monetizations in policymaking. **No law or EO requires monetized CBA to settle any policy question.**

References

Adler, M. D. 2020. "What Should We Spend to Save Lives in a Pandemic? A Critique of the Value of Statistical Life," *Duke Law School Public Law & Legal Theory Series*.

Bressler, R. D. (n.d.). *Breaking Down the Mortality and Social Cost of Carbon [JMP]*. (https://rdanielbressler.com/s/JMP.pdf).

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