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Rethinking Cost-Benefit Analysis

Introduction:

What is the value of a human life? Can this even be monetized? Proponents of cost-benefit analysis would say yes and provide a specific numerical value. Cost-benefit analysis (CBA) is a process used by regulators to assess public policy options. With this tool, government analysts attempt to assign monetary values to the predicted costs and benefits of proposed regulations. If the benefits exceed the costs, the regulation is considered. If the regulation fails the test, it may not be seen as viable. Other factors are meant to be used in regulatory decision-making, including statutory mandates and political priorities (Carey, 2022). However, CBA often ends up being the determining factor in whether or not a regulation is enacted.

CBA is used across all federal executive branch agencies, including the Environmental Protection Agency (EPA). The EPA calculates costs based on the value of resources directed to pollution reduction, which is how much of a burden the regulation will be to corporations. They determine benefits based on predictions of how much individuals are willing to pay to reduce risk, which they measure in lives saved, pollution prevented, and resources preserved (Environmental Protection Agency, 2023). While this may seem like a logical way to assess regulations, it has resulted in environmental quality being "treated less as a public good subject to value-based decisions, [and] more as a private good where price-based calculations [are] deemed to best inform" (Stallworth, 1997). Even when the EPA proposes regulations based on health criteria and scientific research, CBA oftentimes blocks implementation.

In this paper, I will explore the impacts of cost-benefit analysis on environmental governance and the functioning of the Environmental Protection Agency. I begin by reviewing the historical background of CBA and how the current system came to be. I will consider issues with cost-benefit analysis centering around the faulty economic methods it employs and the immorality of monetizing human lives and the natural world. Proposed solutions include emphasizing decision-making based on the precautionary principle, using cost-effectiveness analysis, thinking about environmental issues using a more ethical framework; and if cost-benefit analysis is used, applying lower discount rates to avoid devaluing the future.

Historical Background:

Since the 1970s, federal agencies have been instructed to consider the costs and benefits of regulations (Carey, 2022). In 1981, President Reagan issued Executive Order 12291. This required agencies to maximize benefits over costs for regulations expected to have large economic impacts. The directive gave great oversight powers to the Office of Management and Budget (OMB) and the Office of Information and Regulatory Affairs (OIRA) which review rules put out by executive branch agencies (Carey, 2022). In 1993, President Clinton issued Executive Order 12866, which was meant to ensure that regulatory benefits justified the associated costs (Carey, 2022). Specifically, it required a more rigorous CBA process for rules with an economic impact over \$100 million (Carey, 2022). In 2003, the OMB issued *Circular A-4* which aimed to standardize the CBA process across agencies. It recommended the inclusion of a needs statement, alternative options, and considering the qualitative and quantitative costs and benefits (Carey, 2022). *Circular A-4* also set standardized discount rates.

In 2011, President Obama issued Executive Order 13563, which reasserted support for President Clinton's Executive Order 12866 (Carey, 2022). Additionally, it introduced the idea that CBA should consider equity, dignity, fairness, and distributive impacts (Obama White House Archives, 2017). A major change occurred in 2017 when President Trump issued Executive Order 13771. This required agencies to eliminate two existing rules before issuing a new one, and it also set cost caps. In other communications, the Trump Administration repeatedly threatened to make it more difficult for the government to regulate industries by "making CBA more rigorous and enforced by OIRA" (US Department of Commerce, 2017). Rather than evaluating regulations based on whether they were cost-beneficial, Trump took it a step further by encouraging agencies to get rid of regulations altogether

(Carey, 2022). In 2021, President Biden overturned these Trump-era rules and issued a presidential memorandum reaffirming Clinton's Executive Order 12866 (Carey, 2022). In April 2023, President Biden signed Executive Order 14094 which redefined a "significant regulatory action" as having impacts over \$200 million, which doubled the required CBA threshold. It also directed the OMB to revise and update *Circular A-4* (The White House, 2023). There is potential for the Biden Administration's recent steps to modernize the process of CBA, but for now, the system has remained relatively unchanged since the 1990s.

The Problems with Cost-Benefit Analysis:

Beyond cost-benefit analysis preventing the EPA from issuing common sense environmental regulations, which is the agency's directive, there are other issues with the process encompassing the economic approaches as well as moral and ethical implications. While it is often posited as mathematical and unbiased, the economics of CBA can be arbitrary and inconsistent. The process "rests on a series of assumptions and value judgments that cannot remotely be described as objective" (Heinzerling, 2002). In order to monetize benefits, which exist entirely outside financial markets, analysts assess willingness to pay to creating artificial prices. For example, "preventing the extinction of bald eagles reportedly goes for somewhat more than \$250 per household. Preventing retardation due to childhood lead poisoning comes in at about \$9,000 per lost IQ point" (Heinzerling, 2002). The positing of these made-up values as factual is cause for concern. Most troubling of all, under the directives of CBA, the EPA estimates that the "value of statistical life" is \$7.4 million (EPA). But, human beings are not statistical. This figure was created through imprecise economic methods, and thus it "comes at the expense of accuracy and even common sense" (Heinzerling, 2002). Our society does not allow lives to be bought and sold, so it should not be possible to value lives for regulatory purposes.

Another economic issue with CBA is that it can be intentionally leveraged to oppose regulatory actions. Studies have shown that the private sector tends to far overestimate the costs of regulations, sometimes by 25% or even 50%. In a particularly dramatic example, "before the 1990 Clean Air Act

Amendments took effect, industry anticipated that the cost of sulfur reduction under the amendments would be \$1,500 per ton. In 2000, the actual cost was under \$150 per ton" (Heinzerling, 2002). Whether or not companies overestimate regulatory costs on purpose, the effect is that it prevents rules from being enacted. Additionally, analysts often use CBA backward to reach predetermined outcomes (Baram, 1981). Professor Michael S. Baram, a prominent professor of law and an early environmental lawyer, observed that analysts within federal agencies often made predetermined regulatory decisions based on political mandates, then applied the mathematics of CBA in reverse to arrive there. He described the entire system as a "hodgepodge" (Baram, 1981).

Discounting, an economic foundation of CBA, undervalues the future. Discount rates are how economists account for how much one is willing to trade off present benefits for future benefits. The OMB's *Circular A-4* from 2003 advised federal agencies to use a discount rate of 7% to "capture the return paid by private capital, reflecting effects on investment and business" and a discount rate of 3% to reflect "the return received by consumers, with the difference largely due to taxes" (Li, 2021). The result of discounting is that the value of benefits that will be felt in the future is equivalent to smaller present values (Heinzerling, 2002). While discounting may be applicable in strictly financial settings, "it cannot reasonably be used to make a choice between preventing noneconomic harms to present generations and preventing similar harms to future generations" (Heinzerling, 2002). Discounting is a real injustice for generations to come.

In addition to the issues concerning the economics of CBA, the process raises serious ethical questions. There is a fundamental mismatch with the approach because it forces benefits like lives saved, diseases prevented, and preserved nature to be translated into dollar values even though they are *invaluable* (Stallworth, 1997). Any number that is applied to such precious things will only ever be a pale reflection of the real worth. Additionally, the benefits of environmental protection can never fully be quantified. This is because ecological functions and ecosystem services, which are central to supporting life on earth, are so complex and essential that we will never be able to achieve accurate valuations

(Stallworth, 1997). With benefits being undervalued and costs being exaggerated, CBA winds up being "a complete-cost, incomplete-benefit study" (Heinzerling, 2002). This is unfair.

CBA also fails to account for issues of equity and justice by reinforcing economic and social inequality and ignoring who suffers from environmental issues. Under CBA, "poor countries, communities, and individuals are likely to express less 'willingness to pay' to avoid environmental harms simply because they have fewer resources" (Heinzerling, 2002). As a result, CBA supports putting more vulnerable communities at risk. While he was chief economist at the World Bank, Lawrence Summers wrote, "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" (Heinzerling, 2002). This is from an official memo. The absurdity of Summers' statement was highlighted by Jose Lutzenberger, who was Brazil's Secretary of the Environment at the time. "Your reasoning is perfectly logical but totally insane... Your thoughts [provide] a concrete example of the unbelievable alienation, reductionist thinking, social ruthlessness and the arrogant ignorance of many conventional 'economists' concerning the nature of the world" (Heinzerling, 2002). CBA is in direct conflict with the core tenets of environmental justice.

Alternative Approaches:

Although it has been the norm in the government to rely on cost-benefit analysis since the 1970s, this is not the only way to do things. One alternative is to make regulatory decisions based on the precautionary principle. This is the idea that it is better to be safe than sorry, and that in the context of uncertainty, preventative action should be taken instead of waiting for further proof (Stallworth, 1997). Instead of requiring the EPA to go through difficult steps to prove environmental harms and the necessity of protection measures as is currently the case, the precautionary principle reverses this burden of proof. As a result, "full scientific certainty [would] not [be] required to justify protective actions that safeguard

ecological functions that support and maintain life on earth" (Stallworth, 1997). This is crucial in the context of environmental issues because the cost of inaction is very high.

Another alternative to CBA is cost-effectiveness analysis. While the name is similar, to costbenefit analysis there are important differences between the approaches. Cost-effectiveness involves agencies using "discretion and responsibility to choose a most cost-effective route to achieving the reduction of health risks. Once these goals are established on such health grounds, the agencies ... may thereafter choose the most cost-effective means of achieving the goals" (Baram, 1981). This switches the question from whether to act to how to act. It allows for greater consideration of social issues and scientific evidence when goals are being set. Then, economic tools can be used (Stallworth, 1997). Costeffectiveness does not ignore costs. Instead, it sees them as a secondary consideration to health concerns, which is more in line with a moralistic approach.

It would also be better to take a more ethical and moral stance on environmental health and safety, which is a cultural and societal shift that needs to happen. We should deemphasize thinking of everything in monetary terms, and instead consider intrinsic value because life and nature are priceless and can never be truly reflected in markets. A more appropriate moral framework can be built using Indigenous knowledge and philosophies. Following the principles of transcendental communal value, many Indigenous communities have a very deep reverence for future generations (Choy, 2018). There is also an understanding that value is determined by individual interpretations of well-being. CBA ignores this by applying discount rates and assigning levels of utility across society (Choy, 2018). Ultimately, in accordance with Indigenous ideologies, "no matter how morally good an action or transaction can be in terms of the utility or benefits it produces, some actions, especially those involving environmental resource exploitation, are always morally undesirable because they ignore the social, cultural, and ethical values of the environment" (Choy, 2018). Therefore, CBA is inadequate for making decisions.

Proposed Solutions:

Because of the serious flaws with cost-benefit analysis and the ample alternatives for assessing environmental regulations, the government should phase out the use of CBA. However, it is true that this has been a dominant approach for over 50 years, and offices have been structured around conducting CBA. Because of this, it will be difficult to quickly switch to alternative approaches. Until a full transition is possible, if federal agencies are to keep using CBA, it is imperative that they use lower discount rates. This is supported by intergenerational ethical considerations. The current rates of 7% and 3% which are recommended by the OMB, are not "a correct application of basic economics" (Li, 2018). The economy, environment, and investment world has changed a lot since 2003 when these figures were set. More recent guidance suggests that using a discount rate of at most 2% is advisable (Obama White House Archives, 2017). One positive step in this direction has been President Biden's recent Executive Order 14094, which directs the OMB to propose revisions to its CBA guidance. The OMB did propose revisions, and they are currently considering lowering discount rates (The White House, 2023). Hopefully, they will reduce the current 3% and 7% figures to below 2%.

To go a step further and officially end the use of CBA in environmental governance, a new presidential executive order must be issued to overturn the current system. It is not necessary for agency action to continue to be limited by CBA. This is because "the Constitution does not require that agency or Executive Office decisions be based on economic analysis and there is no other general doctrine that requires the cost-benefit approach" (Baram, 1981). The updated executive order should emphasize that when human health and the environment are concerned, agencies should be encouraged to take an ethical stance and make decisions based on the precautionary principle and cost-effectiveness analysis. This would free the EPA from the constraints of CBA and allow the agency to deal with environmental issues in a more common-sense manner. It is certainly still important to spend taxpayer dollars wisely and keep regulatory costs down when possible. However, this should not come at the expense of well-being. While Biden's recent Executive Order 14094 is a step in the right direction, a stronger directive must be issued to fully override the problematic legacies left behind by decades of reliance on CBA, which has resulted in foolish decisions that will continue to reverberate for generations to come.

Conclusion:

In theory, cost-benefit analysis seems like a logical way for policymakers to assess proposed regulations based on efficiency. But in practice, the world is so incredibly complex, and CBA fails to capture the important nuance that is present in decisions surrounding environmental governance. It is more appropriate for such decisions to be made using holistic assessments. CBA will never be adequate because it "imposes a traditional supply-and-demand analysis on environmental goods when in reality there is need for government intervention where common property resources cannot be adequately protected by private interests" (Stallworth, 1997). Alternatives to CBA include making decisions using the precautionary principle, pivoting to cost-effectiveness analysis, and reconsidering environmental issues in moral frameworks. Concrete steps to achieving these necessary updates include switching to lower discount rates for CBA, and then gradually phasing out the process entirely under the directive of a new executive order. Implementing these proposed changes would be one way to improve the regulatory process, allowing the EPA to take stronger and more decisive actions and carry out its duty of protecting the environment. Perhaps these solutions will not fix everything, but we must at least try because the state of the climate and the health of the planet is dire. We must act decisively to ensure a safe and healthy future for ourselves and for generations to come.

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