

Ed Clarke, who passed away last week, was the first EPA Desk Officer in OMB's Office of Information and Regulatory Affairs when it was created in 1981.

From the beginning, the EPA desk was OIRA's liveliest, always contending with the most controversial regulatory decisions. But Ed was a wise and affable presence, and a mentor to those who came after him. His long career took him to other agencies and other countries, but it was anchored at OMB. Sometimes, Ed's colleagues or his management found him difficult to understand, but typically that was because Ed was thinking more deeply about things than was customary in Washington. Trying to understand him was well worth the effort, though. As an example, consider the Clarke Tax, Ed's creative solution to the core problem of Benefit-Cost Analysis: how to discover the truth about the value of public goods.

Imagine a town alongside a river, contemplating whether to build an expensive bridge. How do we know if it is worthwhile? At the town meeting many people present persuasive arguments for its construction. The owner of the existing ferry service objects, though: "I provide my service for a fee, and I am happy to expand my schedule whenever demand warrants it. If somebody here wants to build a bridge, by all means do it, and charge a toll, as I do. If a bridge hasn't been built, it's because it is not as cost-effective as my ferry. I don't ask a subsidy from the town, and I don't see why the town should subsidize a competitor. It would destroy my business."

He has a good point; and, if the town decides to proceed, perhaps they should consider budgeting a buy-out of the ferry as part of the bridge project. But the argument that a *toll* bridge is not competitive does not really answer the question of whether the bridge itself is worthwhile. The town's budget director explains it this way: "We have estimated a demand curve for bridge crossings, and it includes a mix of different traffic. It includes a small number of highly valuable crossings – many of these folks are already ferry customers. It also includes a large number of crossings of much lower value. The bridge can easily accommodate them all, at zero marginal cost once it is built. Altogether, the consumer surplus seems to be well in excess of the cost of building the bridge."

"But there is a problem. In the absence of a practical mechanism for price discrimination, no toll booth could collect more than a fraction of this consumer surplus. This is not just the usual theoretical argument that the optimum, welfare-maximizing toll should be zero. Regardless of where the toll is set, it will not cover the cost of the bridge. And yet we still suspect that the benefits exceed the costs."

To answer the question of whether the bridge should be built, the town needs an evaluation of everyone's willingness to pay for it. But if they are not *actually* paying for it, how do we get honest, rather than strategic, answers to that question? Ed's solution was to take a special kind of vote, in which each ballot is a personal check. Each of the town's voters should write a check for



the amount that each was willing to contribute to the cost of the bridge. If the total exceeds the cost of the bridge, we should build it.

The town would *not*, however, cash all the checks. The bridge will be built from general revenues. Any particular check would be cashed if, and only if, it was written for an amount large enough, by itself, to flip the decision from “no-build” to “build.”

Notice that this mechanism completely eliminates the problem of strategic exaggeration; no one has an incentive to overestimate their willingness to pay. There are only two possibilities. My vote will make no difference; in which case why bother to distort it? Or it *will* make a difference. If it does, I might wince as my check is cashed, but I will not regret it. Even if I could stop payment, I would not; because then I would not get the bridge that I want so much. How much? Exactly that much.

If any voter exaggerated his willingness-to-pay and succeeded in flipping the decision in favor of building the bridge, he would thereby suffer a personal welfare loss exactly equal to the amount of the exaggeration, because he paid too much for the outcome.

The free-rider problem is solved, too; there is no incentive to put in a low bid, for that will either have no effect, or else will give me an outcome that I regret. The Clarke Tax is a mechanism for “incentive compatible demand revelation.” It elicits truthful responses to the questions that benefit-cost analysts are always trying to answer, and does so by structuring the incentives so that anyone trying to game the system will find that their winning strategy is to tell the truth.

As a practical matter, it should be obvious that Clarke’s enforcement mechanism – cashing some, but not all checks – is likely to present some obstacles. But notice something interesting about it. Most methods of estimating benefits get more difficult as the number of participants gets large. But the Clarke Tax method gets easier. As  $n$  gets large, the likelihood that anyone’s check will be cashed gets vanishingly small. For a \$10 million bridge with \$18 million in benefits, only an individual check in excess of \$8 million would be cashed. Indeed, for projects with a benefit-cost ratio greater than 2, we would expect no check to be cashed because the ferryman’s argument would then gain traction: anyone willing to write a check large enough to be cashed would already have built the bridge. And yet, even with large  $n$ , the incentive to be honest remains intact.

To those who have wandered in the smoke-and-mirrors labyrinth of benefits analysis, this is an astonishing result. It tells us that we should not regard willingness-to-pay estimates – many of them of dubious origin and credibility – as just shadows on the wall. There is an underlying reality that is, at least in theory, empirically accessible. As we search for honest answers to challenging public policy problems, the existence of the Clarke Tax, despite its practical limitations, provides an inspiration to try to do better.

*The illustration here is a simplification of a complex literature. For those interested in learning more, a good place to start is <http://clarke.pair.com/dev/ed-clarke/index.php>.*

