Issues in Pesticide Policy: Discussion

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Two issues lurk in the background of the papers by Lichtenberg, Taylor, and Cropper et al. The first is a specific question about the goal of regulatory policy. The second is a more global consideration regarding politics, technological change, and the future.

The first issue is how to formulate the health-risk side of the risk-benefit trade-off where pesticides are concerned. This question arises particularly in the paper of Cropper et al. Should we think in terms of policies that measure trade-offs involving risks to *individuals*, as the Cropper et al. paper does, or rather *aggregate* health effects on a large population. In fairness, we should note that the Cropper et al. paper uses individual risks only in the absence of data on numbers of persons affected. These data are needed to calculate expected numbers of cancer deaths.

On moral grounds, it seems clear that *both* individual risks and aggregate health effects should be taken into account. There is no difference in aggregate expected mortality between one million people facing a risk of 10^{-6} each and one person facing death for sure. But there is a big difference philosophically. Public policy is often prepared to put a price tag on the former, but never on the latter. It is intriguing to ask just what the difference really is. Is it simply a question of anonymity?

I can best make this point using a specific example. I happen to have one at hand. In an analysis by Harper and Zilberman, the cotton pesticide chlordimeform was found to expose mixers and loaders to a lifetime risk of 10^{-3} or 10^{-4}, a relatively high level. Since worker risks higher than 10^{-5} are often deemed unacceptable, the conclusion would be to ban the material for this use. On the other hand, the number of people exposed in this way was quite small, only a few dozen, making aggregate health risk very small in relation to economic benefits. As a result, the cost of saving a life by banning the material was estimated to be $100 million or more.

Conclusion? Ban to protect individuals or do not ban to preserve rationality in risk-benefit trade-offs? The appropriate moral policy is suggested, I think, by the fact that there is no sum for which we would kill an individual for sure. Perhaps there is also no sum that would allow us to inflict a risk of 1 in 10 or 1 in 100. So there must be a threshold level of risk, some say one in a million, beyond which risk-benefit trade-offs become palatable. The conclusion for the Cropper et al. paper is that looking for trade-offs between dollar benefits and levels of *individual* risk may not reflect the way our public policy should be expected to work. Such trade-offs should involve *aggregate* health measures, like expected number of illnesses, and these trade-offs should kick in only after an adequate measure of safety for individuals has been assured. Such a policy may be expressed in terms of a safety fixed rule, and may be regarded as an application of Ciriacy-Wantrup's "Safe Minimum Standard" (Randall).

The second issue pertains to all three papers. The Environmental Protection Agency (EPA) has been quite active in recent years fulfilling its mission to reevaluate all pesticides currently in use in the United States. Most of these evaluations consider materials one by one or in small clusters. The economics literature tends to develop its critiques on the same basis. It has been pointed out by both Lichtenberg and Taylor that risk and benefit assessments must *assume* what substitute pest control will be available if the current pesticide is banned. Thus, the analyst becomes caught up in narrow questions of the differing properties of near substitutes.

Blowing in the wind, however, is the real potential for far more sweeping changes in pesticide law and in the style of pest management, which since World War II has emphasized increasingly heavy use of chemical pesticides. In July 1992, for example, an appeals court overruled EPA's efforts to circumvent the zero-tolerance provision of the Delaney Clause for carcinogenic pesticides that concentrate in processed foods. The potential impact of this ruling was summarized in the *Wall Street Journal* (July 9, 1992):

> The test case targets only four pesticides—benomyl, phosmet, mancozeb and trifluralin—but could put 60 or more other cancer-causing

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pesticides off the market if tests show their residues concentrate when raw foods are frozen, cooked, canned, dehydrated or milled . . .

[T]he court said the law was straightforward. "The legislative history supports the conclusion that Congress intended to ban all carcinogenic food additives, regardless of amount or significance of risk, as the only safe alternative," the judges wrote.

Although the ruling involved only processed foods, it's likely to trigger a drop in use of cancer-causing pesticides on fresh produce purchased by consumers as well. Raw produce will be affected because once the EPA bans a pesticide from processed food, it typically bans its use on raw food, too. . . .

"It's a tremendous victory for public health," said Albert Meyerhoff, senior attorney for the Natural Resources Defense Council. "It puts far more pressure on the agricultural and chemical companies to move away from these cancer-causing pesticides."

Robert Taylor raises the issue of looking at pesticides one by one. Economists who look at pesticides only within this conventional mode of analysis risk missing the interesting issues of our time—sustainable agriculture, consumer preferences, and technological change.

Evidence suggests that *both* risks and benefits of pesticides are overestimated, not only by lobbyists, but also by the scientific community. Risk estimates are known to be deliberately conservative, because they are generated by public-health specialists who intend to build in a safety margin. Plenty of anecdotal evidence indicates that benefits are overestimated as well. The economic disaster predicted for the northeast apple industry following the removal of Alar, for example, has not materialized on anything like the scale predicted by many agricultural economists.

We need to develop models that can begin to capture the possibility of technological change and economic adaptation if and when pesticides are no longer so freely available or acceptable to consumers. The current approach—examining each pesticide relative only to its nearest chemical substitute—implicitly assumes that major shifts away from pesticides in agriculture are not possible. Public opinion would like to believe otherwise, and recent evidence from California shows major reductions in pesticide use occurring already. Economists should avoid being in the position of explaining important social changes after they have already occurred.

References

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