

Externality

BY AARON STEELMAN

Imagine you have high blood pressure and seek a doctor's advice. There are different things that he might prescribe: He might put you on medication, or he might say that the problem can be handled through exercise and diet. Both solutions could have side effects, some negative and some positive. The medication, for example, could cause you to feel light-headed. The changed diet and exercise regime, on the other hand, could help you lose weight and increase your energy level.

Many types of economic activity also have side effects. In some ways, these side effects are like those of the medical patient mentioned above: They can be either negative or positive. But in other ways, they are different: They are felt not just by the patient but by a larger group of people. Economists refer to these side effects as "externalities."

Consider the case of a factory that pollutes the air of neighboring property owners. Those people are not engaged in the manufacturing process but they feel its effects. They, not the owner of the factory or the consumer of its goods, bear the cost. This is an example of a negative externality.

Now consider the case of a positive externality. Let's say that you enjoy gardening and plant a variety of flowers in your yard. You benefit from the beauty of those plants, but so do your neighbors who can view them at no charge.

In both cases, government action may seem desirable. One of the most common approaches is regulation. In the case of the factory, the government might put a cap on the amount of pollutants it can discharge. In the case of the homeowner, the government might require all citizens to meet minimum requirements regarding the upkeep of their property.

The government might decide to forego regulation, however, and impose taxes instead. It could tax the factory according to the amount of pollution it produces. That may induce the factory to cut emissions on its own, but if not, the government could use the tax proceeds to compensate those affected by the smoke. In the case of the homeowner, the government could subsidize improvements people make to their houses and lawns.

Both of these solutions—regulation and taxation—can be blunt instruments, though, and can produce side effects

of their own. It may be more desirable for the market to work out these problems on its own. But how? In a 1960 article in the *Journal of Law & Economics*, Ronald Coase argued that such externalities can be "internalized" as long as property rights are fully allocated and transferable, and transaction costs are low.

Consider the case of the factory. Assume that the factory's emissions cause damages of \$100 per year, that a smoke-preventing device could be installed for \$90 per year, and that the government taxes the factory to cover the damages. In this scenario, the smoke-preventing device would be installed and the factory owner would be better off by \$10 annually

than if he had paid the tax. "Yet the position achieved may not be optimal," Coase writes. "Suppose that those who suffer the damage could avoid it by moving to other locations or by taking various precautions which would cost them, or be equivalent to a loss in income of, \$40 per annum. Then there would be a gain in the value of production of \$50 if the factory continued to emit its smoke and those now in the district moved elsewhere or made other adjustments to avoid the damage."

Under a robust system of property rights, the parties would have a strong incentive to negotiate and arrive at this more efficient solution.

For instance, the factory owner might simply buy the homeowners' right to clean air—at a cost between \$40 and \$90 annually—and continue operating his plant as he had before.

Naturally, some economists were skeptical of Coase's theorem and pointed to cases where they thought it would not apply. Yet in many of those cases, voluntary, mutually beneficial arrangements had long been the norm. The most famous example involves bees.

Bees require nectar from plants, and plants require pollination. So when plants were producing nectar and did not need pollination, beekeepers paid farmers for the right to put their hives on farmers' fields. And when plants were producing little nectar but needed pollination, farmers paid beekeepers. There was no regulation, tax, or subsidy involved.

This does not mean that the market can handle all externalities. But Coase's theorem should give us pause about the extent to which state intervention may be necessary. **RF**



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