



# Putting a Price on Solid Waste Reduction

Not all methods designed to reduce solid waste are paragons of economic virtue. In fact the differences in costs across programs can be quite substantial. So when a government selects an inefficient approach to discouraging garbage, it can be an expensive proposition. RFF Fellows Karen L. Palmer and Margaret A. Walls, along with Gilbert F. White Postdoctoral Fellow Hilary Sigman, suggest as much in their latest look at the costs of reducing municipal solid waste.

Like other economists who have studied this issue, Palmer, Walls, and Sigman operated on the assumption that most municipalities want to confront households with the full costs of handling and disposing of what they throw away. Illegal dumping, however, is the feared consequence of upfront approaches, such as charging households by the pound or restricting the quantity of garbage picked up.

With that in mind, the researchers looked at three indirect ways to make consumers sensitive to the costs of transporting and disposing of waste at landfills and incinerators: deposit/refund programs, which place a fee or deposit on a product when it is purchased and then refund it when the used product is returned for recycling; recycling subsidies, which offer monetary support to manufacturing firms that use recyclable materials; and advance disposal fees, which are charged to manufacturers to cover the ultimate disposal or recycling costs of their products.

To find out how much it costs to use each method, the researchers calculated what a municipality would have to charge in each instance to get a modest, 10-percent reduction in waste. To make their calculations, Palmer, Walls, and Sigman built a model of waste generation and recycling using price and quantity data

from 1990 for each of five materials—aluminum, glass, paper, plastic, and steel—that make up 56 percent of a typical American municipality's solid waste.

The RFF researchers found that the differences in cost across methods were significant. To get the 10 percent waste reduction through a deposit/refund program cost \$45 per ton; to get the same reduction through advance disposal fees and recycling subsidies cost \$85 and \$98 per ton, respectively. The deposit/refund cost was significantly lower because the method offers incentives to recycle *and* reduce consumption, whereas the other two methods encourage only one or the other.

Palmer and her colleagues thus confirmed what earlier studies have indicated: deposit/refund schemes are the least expensive way to make consumers bear the costs of waste transport and disposal, assuming that illegal disposal is an option. Having said that, the researchers note that advance disposal fees could be preferred if the administrative costs involved in running a deposit/refund program are high.

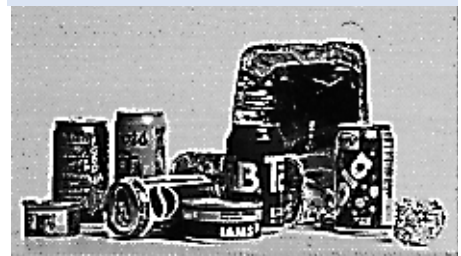
How policy is set makes a difference in waste reduction costs, also. Setting a single disposal price for all waste items is more efficient than setting reduction goals for individual materials, since some of them are cheaper to reduce (paper and glass) than others (metal). Using a deposit/refund system, for example, a 10 percent reduction in each of the five materials studied would cost almost twice as much as a 10 percent reduction across the board, the researchers found.



See page 22 to order the researchers' related discussion paper, "The Cost of Reducing Municipal Solid Waste" (96-35).

## A Modest Proposal

Right now RFF Fellow Karen Palmer and her colleagues think the true social cost of disposing of solid waste (including cans) is much lower than what consumers pay in states with so-called "bottle bill" deposit/refund programs. These programs are expensive to implement and administer.



If "Joe" is in the habit of tossing his empty six-packs into the garbage rather than recycling them in a state with a deposit/refund program, he'll end up paying much more for the privilege than it actually costs to cart the cans off to the dump or incinerator. (Costs include environmental damage like groundwater contamination and disamenities like the congestion and noise that garbage trucks create.)

The incentive for Joe to stop tossing out beer cans and start recycling them is more severe than it should be, the RFF researchers maintain. They say the deposit fee charged on the cans should be in line with what it costs to dispose of them.

That state bottle bills may be excessive is not to say consumers are off the hook, however. The RFF researchers confirm that we stand to gain economically if we can cut down on waste by a modest amount.