

### **Bottle Bills: Small Change for More Recycling**

Growing up in Ohio, I never understood the states listed on the side of the Coca-cola cans. Why wasn't Ohio on there? Why were any states on there at all? I guess I was too embarrassed to ask my parents about it, but I finally got my answer while watching an episode of Seinfeld. Amazing what television can teach you! Two of the characters, Kramer and Newman, devised a plan to collect as many empty cans and bottles as possible, load them in Newman's mail truck, drive to Michigan, and collect 10 cents per container. Those states that are listed on cans and bottles have container deposit laws (CDLs), also known as "bottle bills," as part of their recycling programs. When I started school at the University of Michigan, I had my first real experience with the state's bottle bill as student groups would stop by the dorms to collect bottles and cans in order to raise money. Here in Philadelphia, you might see homeless people digging through the trash for food, but in Michigan, more often than not they would be looking for bottles and cans. As it turns out, Michigan, along with other CDL states, has a more successful recycling program than states without deposit programs.

Bottle bill programs initially became popular as the beverage industry replaced refillable glass bottles with one-way containers. Coca-Cola originally introduced refillable glass bottles back in 1894. A half-century later, in the 1940s, one-way, non-returnable glass bottles were introduced as way to reduce hassle for consumers (Bakshi, 2006). In 1959, the market share of refillable bottles took another hit when the Coors Brewing Company started using aluminum cans to package its product (Coors, 2006). By 1980, refillable glass bottles made up only 31% of the soft drink market and 12% of the beer market. Today, refillables make up less than 2% of beverage containers (Hoy, 2003). With the decline in the use of refillable bottles, recycling programs began appearing around the country, especially due to the environmental movement of the '60s and '70s.

Although recycling efforts around the country have been relatively successful, they are beginning to slow down. While more and more recycling programs are being established, the increased effort has been unable to keep up with the increase in beverage sales. Over the past 30 years, beverage sales have gone up over 500%, while recycling rates have dropped from 53.5% in 1992 to 33.5% in 2004. Currently, nearly 200 billion beverage containers are sold in the U.S. annually, meaning that about 130 billion containers are landfilled, incinerated, or littered each

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year (Bakshi, 2006). In fact, studies have shown that upwards of 60% of all litter is comprised of beverage containers (SWaCK, 1999). Although beverage bottles make up only 1.4% by weight of total waste, they are among the most recyclable materials found in landfills. Furthermore, this wasted material, especially the aluminum, is among the most economically valuable resource in the municipal waste system (Bakshi, 2006).

Even back in 1959, the Coors Brewing Company knew the value of the aluminum in its new cans. In fact, the same year that Coors introduced the aluminum can, the company began offering a penny for every can that was returned to their recycling center (Coors, 2006). With refillable bottles going out of style, beverage companies had to continually produce new containers, but using virgin materials is expensive and consumes large amounts of energy, water, and other natural resources. Improving the recycling system in the U.S., therefore, will prevent the quick exhaustion of natural resources and will significantly reduce waste and litter. Therefore, in addition to curbside recycling services, increasing the number of states with CDLs would be a large step in the right direction.

So what are bottle bills? How do CDLs work? Basically, after the bottle bill is passed, the law requires distributors and retailers to collect a refundable deposit on beverage containers. In 1971, Oregon was the first state to pass a bottle bill, and several states soon followed. Currently, eleven states have deposit return systems – Oregon, Vermont, Michigan, Maine, Iowa, Connecticut, Massachusetts, Delaware, New York, California, and Hawaii. The Michigan Beverage Container Act was enacted on November 2, 1976, and requires the highest deposit of 10 cents per container (Stutz & Gilbert, 2000). Other states typically require deposits of only 5 cents. In Michigan, only “beverage containers” are required to carry a deposit. Specifically, the term, “beverage,” means a “soft drink, soda water, carbonated natural or mineral water, or other nonalcoholic carbonated drink; beer, ale, or other malt drink of whatever alcoholic content; or a mixed wine drink or a mixed spirit drink” (State of Michigan, 1976).

The deposit system begins with the retailer depositing 10 cents (in Michigan) for each container bought from the distributor. Next, customers purchase the products and must pay 10 cents per container to the retailer. When a container is empty, the customer can return it to the retailer, a redemption center, or to a reverse vending machine and the 10-cent deposit is returned. From that point, the container is returned to the distributor for a 10-cent refund plus an additional

handling fee of 1-3 cents (see Figure 1). Distributors typically recoup their own handling costs in a few different ways. Primarily, if the distributor does not recycle the containers itself, the scrap cans and bottles are sold. Also, the deposits collected from the retailers can be used in short-term investments. Finally, not all containers are returned, so distributors may earn some profits by retaining some of the unclaimed deposits (Container Recycling Institute, 2007). In 1989, a law was passed in Michigan giving 25 percent of unclaimed deposits to distributors, while the other 75 percent goes to the state's environmental fund (Stutz & Gilbert, 2000). In most states, all unredeemed deposits are kept by the distributors and retailers.

Although the amount of unredeemed deposits can add up to millions of dollars per year, that does not mean that CDLs are ineffective. On the contrary, compared to non-deposit states, states with CDLs have significantly higher container recovery rates, of course resulting in significantly higher recycling rates. In 2004, the 10 deposit states averaged a 72 percent recovery rate, while the other 40 states averaged only a 28 percent rate (see Figure 2; Franklin, 2004). Given that the Michigan CDL has twice the required deposit of other CDLs, it is no surprise that the state has the highest redemption rate, nearly 100 percent (see Figure 3; Franklin, 2007). The reason for such high container recovery rates is simply that the deposits give an incentive to recycle and pick up bottles and cans that have been littered. Similarly, the deposits provide a disincentive to litter or throw away empty containers. Thus, not only are recovery rates increased, but littering rates fall as well (see Table 1; Franklin, 2007).

Some critics claim that bottle bills are not compatible with curbside recycling programs, but this is not the case for a number of reasons. Deposit programs complement curbside recycling very well simply by giving consumers a second opportunity to recycle. Because more and more beverage containers are being carried and consumed away from home, they are less likely to make it into the home recycling bins, so deposit programs help keep them out of the trash and off of the ground. On the other hand, if consumers do not like the hassle of returning the bottles and cans for the refund, they still have the option of placing them in the curbside bins (Franklin, 2004). In states with both curbside recycling and deposit programs, one study found that 490 containers per person are recycled per year. Meanwhile, in non-deposit states, which rely only on curbside and drop-off recycling, 191 containers per person are recycled per year (BEAR, 2002). Clearly, CDLs can greatly improve a state's recycling program. Some have

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pointed out, however, that many curbside programs were developed with a budget that includes revenue from recycling aluminum, the most valuable recovered material. As a result, they should suffer from the diversion of the aluminum cans to the deposit program. Actually, the revenues lost from aluminum sales are more than offset by the savings realized because the curbside programs no longer have to handle as many beverage containers made of plastic and glass (Pride of Place, 2007). Therefore, contrary to the arguments of opponents to bottle bills, CDLs and curbside recycling programs can coexist and are actually stronger together than apart.

As with all policies, bottle bills do not come without at least a few issues. The main problem is that the 5 cent deposit used in most CDL states is not as much of an incentive as it once was. Due to inflation, the value of the nickel is about 80 percent lower than it was in 1971, the year Oregon introduced the first bottle bill (see Figure 4). If the deposit value had been indexed for inflation, the current value of the deposit would be 22 cents (Gitlitz, 2001). The obvious answer to this problem is to raise the deposit rate, but high deposit rates have their difficulties as well. In particular, higher deposit rates, like the one in Michigan, may lead to a greater incentive for fraudulent deposit redemptions. As alluded to earlier with the example from *Seinfeld*, one way to cheat the system is to buy beverages in non-deposit states and return them in Michigan for a 10-cent profit per container. Of course this is illegal, but it is nearly impossible to catch anyone, because bottles and cans are basically identical from one state to the next. Luckily for distributors, this fraudulent behavior is not common enough to completely discount the revenue from unredeemed deposits. While individual acts are difficult to catch, there are ways to estimate the total amount of fraud. In Michigan, fraudulent redemption has been estimated at \$10 million worth of containers annually, a small percentage of the over \$400 million worth of redemptions in the state each year, but still a substantial amount of money (Stutz & Gilbert, 2000). Because of the potential problem of fraudulent redemption, increasing deposit rates may not be the best idea, unless of course all states were to adopt a bottle bill.

The fact remains, however, that bottle bills have not been passed in a vast majority of states. Considering that 75-90 percent of people in deposit states like the program (Franklin, 2004; Container Recycling Institute, 2003), CDLs are clearly not lacking in support. Actually, all fifty states have at one point or another tried to pass a bottle bill. The only thing standing in the way is the bottling and distribution industry. These companies, along with their customers, bear

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the burden of recycling costs under deposit programs, as opposed to curbside service which is paid for by the government and taxpayers. In addition, the distributors are usually required to pay a handling fee to retailers and redemption centers. Such costs are enough reason for the industry to spend money in opposition efforts. So far, industry dollars have halted the development of bottle bills in dozens of state legislatures and have successfully defeated nine ballot initiatives (see Table 2; Container Recycling Institute, 2003). Despite the opposition, deposit programs are still in consideration in many states, including Arkansas, North Carolina, South Carolina, Tennessee, Maryland, and West Virginia. Furthermore, New York, Iowa, Connecticut, Massachusetts, and Oregon are looking to expand their CDLs in the coming years (Franklin, 2007).

The future of bottle bills is uncertain. One important consideration for the future is to address the increasing prevalence of bottled water. Many current CDLs were initiated before bottled water became popular, but now plastic bottles are used more often to hold water than to hold soft drinks (see Figure 5; Franklin, 2007). California, Hawaii, and Maine already have expanded their CDLs to include a larger variety of beverage containers, and Oregon will follow in January, 2009, by adding a 5-cent refundable deposit to plastic water bottles (Associated Press, 2007). The benefits of bottle bills are well known, as they have been in service in various states for decades. Bottling and distribution companies will continue fighting them, but perhaps public opinion will eventually be enough to persuade legislators to expand the use of deposit programs.

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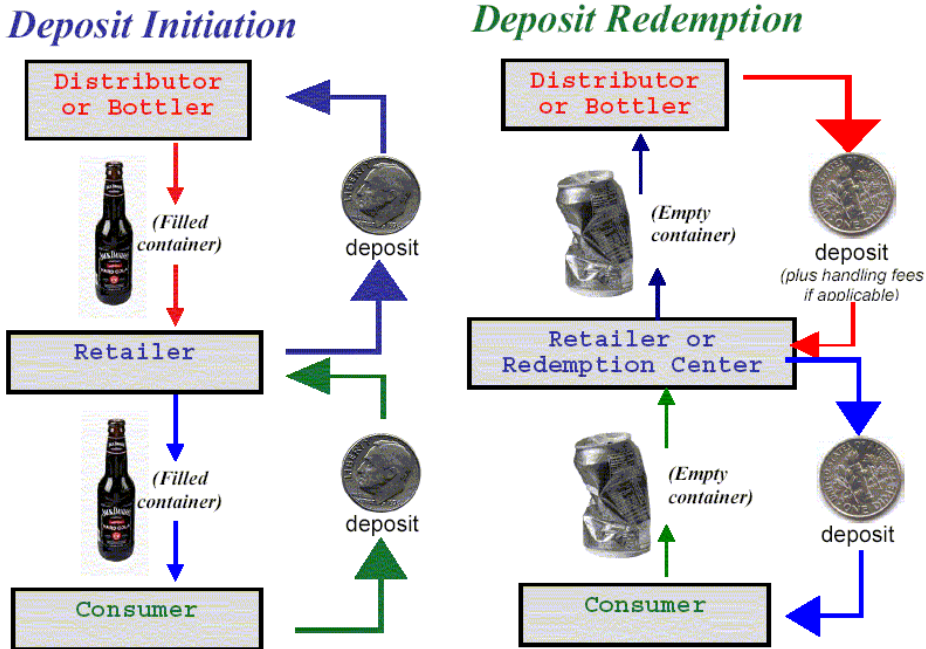
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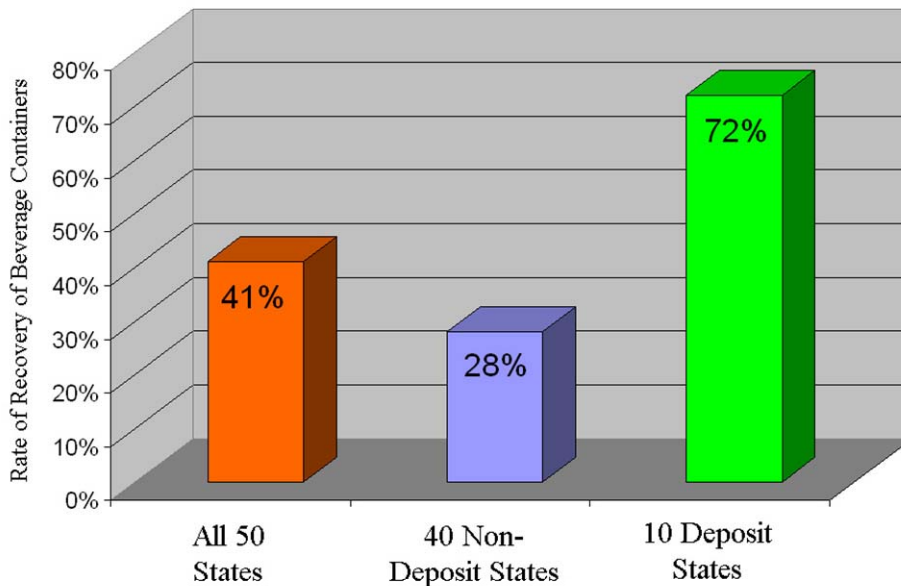
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Figures

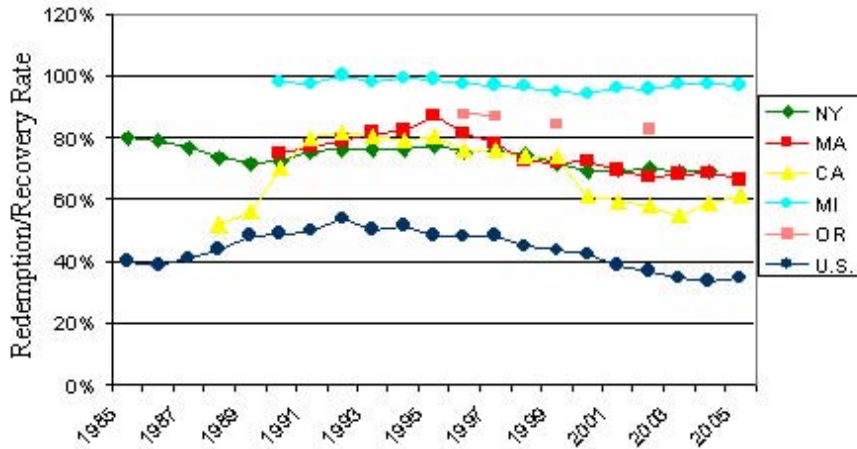
**Figure 1. The Basic Deposit System Flow Chart**



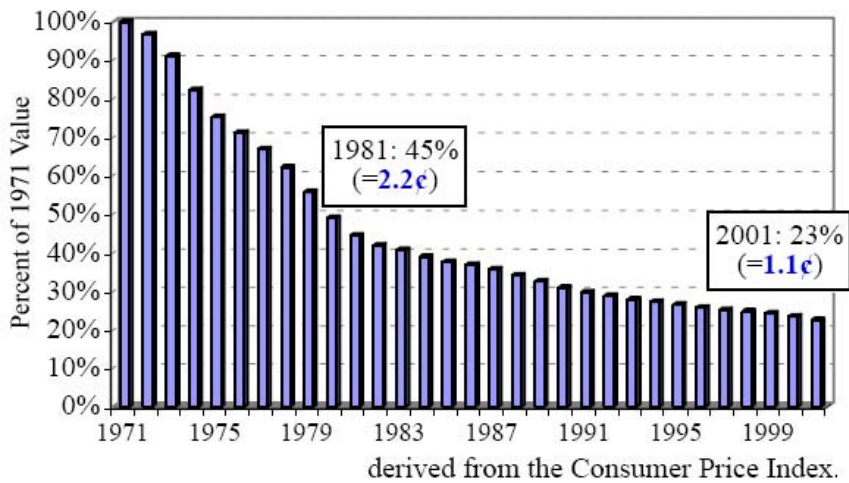
**Figure 2. Deposit Systems Increase Recovery of Beverage Containers**



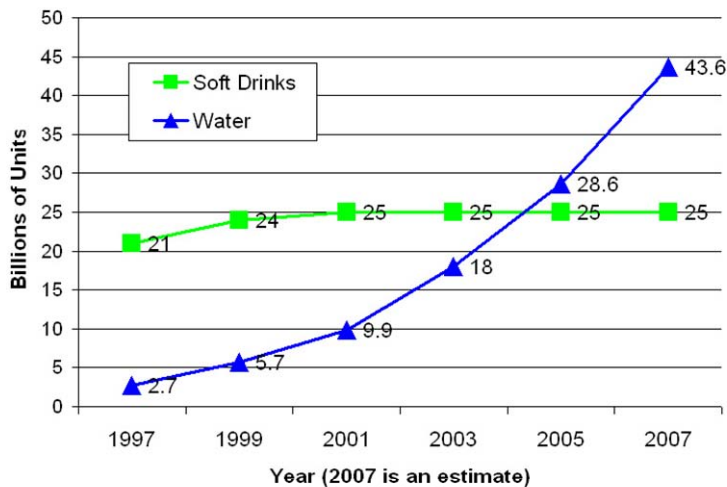
**Figure 3. Redemption Rates in Five Deposit States and U.S. Recycling Rate: 1985-2005**



**Figure 4. The Declining Value of a Nickel: 1971-2001**



**Figure 5. Growth of Plastic Water Bottles and Plastic Soft Drink Bottles (under 1 gallon)**



**Tables**

**Table 1. Litter Reduction in Six Bottle Bill States**

State and Source of Data	Beverage Container Litter Reduction	Total Litter Reduction
New York (Temp State Commission 1985)	70-80%	30%
Oregon (OR DEQ 1982)	83%	47%
Vermont (US GAO 1977)	76%	35%
Maine (US GAO 1980)	69-77%	34-64%
Michigan (MI DOT 1979)	84%	41%
Iowa (IA DOT 1980)	76%	39%

**Table 2. Bottle Bill Initiative Spending Records for Five States**

State	Year	Opponents	Proponents	Result
Oregon	1996	\$3.2 million	\$400,000	Defeated
DC	1987	\$2.2 million	\$80,000	Defeated
Colorado	1982	\$0.5 million	\$25,000	Defeated
Ohio	1979	\$1.2 million	\$117,000	Defeated
Washington	1979	\$1.5 million	\$88,855	Defeated