Deposit Laws: Answer or Alternative?

Doris Epson and Gerald Grinnell
(202) 447-8707

Litter—specifically, discarded beverage containers—has created a cleanup problem across the Nation. The Environmental Protection Agency (EPA) estimates that \$300-\$500 million is spent each year to clean up all litter in the United States. But, there may be a way to reduce litter cleanup costs. It's called recycling.

During the past decade, 41 States have considered legislation to reduce beverage container litter and encourage recycling of empty containers. Eight States enacted laws that require deposits on one-way and refillable beverage containers.

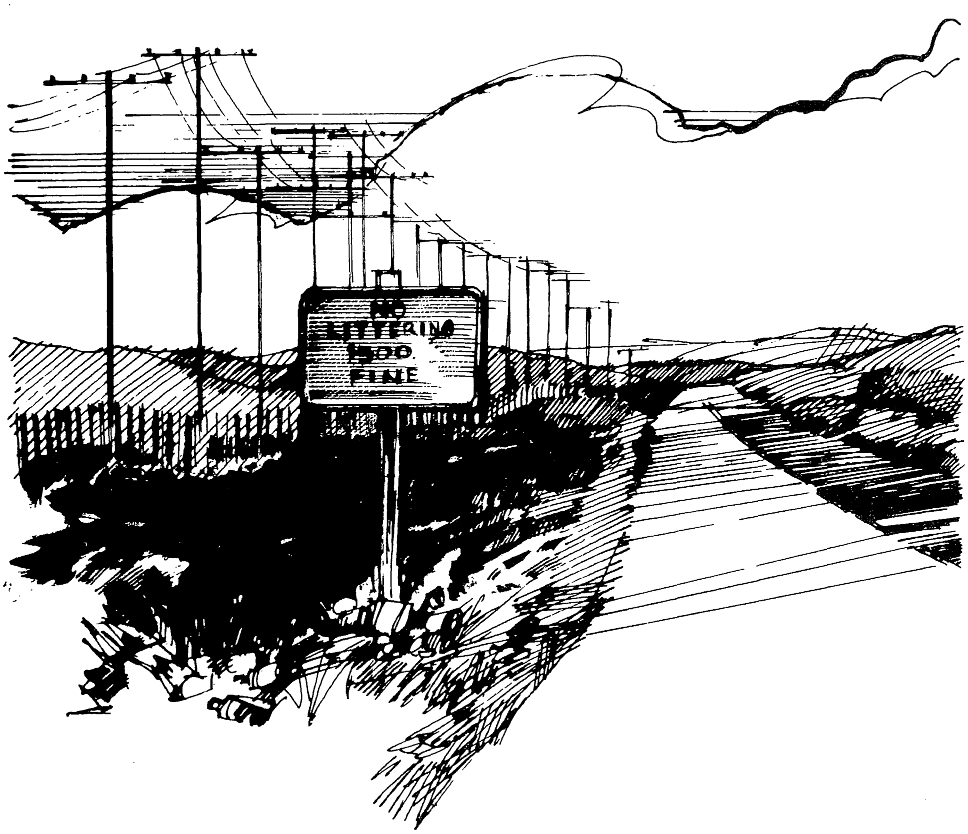
Bills for a national recycling program have been presented in the U.S. Congress each session since 1979. On November 5, 1981, the Senate Committee on Commerce, Science, and Transportation conducted a hearing on Senate bill 709, the Beverage Container Reuse and Recycling Act, which was introduced in March 1981. A companion bill, H.R. 2498, was simultaneously introduced in the House of Representatives.

The provisions of the bills are similar to the State laws but would make beverage container deposits and recycling mandatory throughout the Nation, preempting the individual State laws. No action has been taken on the bills as of this writing. The experiences with State deposit laws may offer insight into possible effects of national legislation.

States with deposit laws have found that beverage container litter has been sharply reduced. However, the laws have had major effects on food retailers, bottlers, brewers, and container manufacturers. Although the firms agree that some form of recycling is needed, they have sought to prevent passage of deposit laws in other States.

Oregon passed the first mandatorydeposit law in June 1971 and seven other States—Vermont, Connecticut, Maine, Michigan, Delaware, Massachusetts and Iowa—followed. The major features of their beverage deposit laws and the provisions of the proposed Federal law are summarized in table 1.

Deposits are collected from consumers on all one-way and refillable glass bottles, steel and aluminum cans, and plastic bottles containing carbonated or malt beverages except when the beverages are served in eating or drinking places. Noncarbonated juices, iced tea, and lemonade are not included. The deposits are refunded when the empty containers are returned to the stores where they were purchased or other stores authorized to redeem them. In some States, retailers redeem containers only of the size, brand, and kind sold by their establishments.



Refillable bottles are cleaned and inspected for physical integrity and sanitary condition and refilled. One-way glass bottles are discarded or smashed and sold for scrap. Cans and plastic bottles are discarded or crushed, baled, and sold for scrap.

The laws do not specify who must originate the deposit fees. Soft drink bottlers generally include the deposit in the prices charged to wholesalers and retailers and refund the deposit when the empties are returned to them. Deposits on refillable beer, ale, and other malt beverages are also included in the brewers' prices. Deposits on one-way bottles and cans containing malt beverages are usually originated by wholesale distributors who also dispose of the returned empties.

The firms that originate the deposit fees can use the money until it is reclaimed, and they keep all unredeemed deposits. The originating firms also receive revenue from the sale of scrap from one-way glass, steel, aluminum, and plastic containers. In Michigan, aluminum sold for about \$600 per ton, steel \$145 per ton, glass \$32 per ton, and plastic \$40-\$100 per ton in 1979. Those firms that receive no revenue from unclaimed deposits or the sale of scrap may be compensated for handling the empty containers by raising prices or by receiving an allowance from their suppliers. Some States specify a fee to be paid to retailers for handling returned containers (table 1).

Reducing Litter and Solid Wastes

Although data on litter reduction are not always complete or consistent, there appears to be strong evidence that deposit laws have significantly reduced beverage container litter along highways and in parks. Vermont experienced a 76-percent reduction in beverage container litter after one year of the law. The Maine Department of Conservation reported that beverage container litter along highways decreased about 70 percent after its bottle deposit law was implemented, according to the General Accounting Office (GAO). In Michigan, the number of beer and soft drink containers in litter dropped 87 percent.

Since there are other types of litter besides beverage containers, the laws had much smaller effects on total litter. The volume of roadside litter dropped 35 percent in both Vermont and Oregon. The Maine Department of Transportation reported that total litter was down 15 percent after the first year the law went into effect, and 10 percent the second year. In Michigan, total litter along streets and highways and in recreational areas decreased 10 percent. Hazardous litter, of which bottles and cans are a major part, was reduced by 58 percent in Michigan.

The beverage deposit laws also reduce the volume of solid waste that is disposed of properly. In Oregon, the number of beer and soft drink bottles found in solid waste declined from 174 million the year before enactment of a beverage deposit law to 40 million after the law was in effect—a decrease of 77 percent, according to Senator Mark Hatfield. Michigan and Maine each experienced 6 percent reductions in the total volume of solid wastes after enactment of their deposit laws.

Material Resources

The Office of Technology Assessment (OTA) reported that 6.52, 1.26, and 0.47 million tons of glass, steel, and aluminum, respectively, were used for beverage container production in 1977. A complete shift to a refillable glass system would free 1.3 percent of the Nation's steel and 12 percent of its aluminum for other uses. Total glass use would also decline.

In those States that have beverage deposit laws, a very high proportion of beverage containers are either refilled or recycled from scrap. Generally, the rate of return on all beverage cans and glass bottles is 90 percent (the rate for plastic bottles appears to be lower but a specific estimate is not available). The Aluminum Company of America (ALCOA) and Reynolds Metals Company have opened major recycling centers in Michigan since the State's law was passed.

Available information indicates that beverage deposit laws reduce energy consumption. The Oregon Legislature reported a net saving of 1.4 trillion BTU's of energy per year as a result of the law, enough to supply heat for 50,000 residents. This estimate takes into account energy savings in the manufacture of containers and the extra energy needed to transport and process empty containers. Recycled aluminum cans reduce energy requirements in can manufacturing by 5 percent. Returnable bottles used about one-third the amount of energy consumed by one-way bottles.

The Federal Energy Administration estimated that a nationwide beverage deposit law would save 144 to 169 trillion BTU's of energy annually—equivalent to 25-30 million barrels of oil.

Effects on Firms

Beverage deposit laws have not been popular with container manufacturers, brewers, soft drink bottlers, wholesale beer distributors, and retailers.

One-way bottles and cans have been replacing refillable soft drink and beer bottles for several years and, at present, account for 70 percent of all containers. According to GAO, mandatory deposit laws reduce the demand for cans, thus explaining the opposition of can manufacturers. Glass bottle manufacturers stand to benefit because glass containers replace metal cans. However, about 65 percent of soft drink bottles are the refillable type after deposit laws go into effect.

Since bottles are typically refilled 10 to 20 times, the total number of bottles needed declines, even after allowing for the substitution of bottles for cans. Relatively more one-way beer bottles have been used since deposit laws were implemented, but this would not be enough to offset the decline in soft drink bottles if a national container deposit law were enacted.

Brewers and soft drink bottlers are concerned that beverage deposit laws will increase their operating costs, leading to higher prices and reduced sales and profits. Higher costs result from transporting, cleaning, inspecting, and handling additional containers. In Michigan, bottlers invested in new bottle washers and bottle filling equipment. The efficiency of delivery trucks dropped 20 to 30 percent due to handling empty containers, and additional trucks were needed. Utility bills for water and energy increased as did diesel fuel and gasoline costs. Wholesale beer distributors bought new and larger trucks to handle the returnables.

Beverage deposit laws also increase retailers' costs. A study done for the Food Marketing Institute in 1980 reported that supermarkets' typical handling costs were approximately 2.37 cents per refillable bottle and 1.94 cents for each one-way bottle and can. Retailers must verify consumers' refund claims, count and bag cans (240 cans per bag in Michigan), and sort bottles into refillable and one-way. Refillable bottles are further sorted by manufacturer.

Additional labor and storage space are required for these tasks. In addition, empty containers often have contaminants, so retailers have had to increase their pest control expenditures. Separate storage areas usually are provided away from foods. Available evidence indicates that there have not been any serious health problems associated with the returned containers.

Effects on Jobs

A major concern about beverage deposit laws is that they may eliminate jobs and cause plant closures. The laws eliminate some manufacturing jobs while creating a greater number of jobs involving the transportation and handling of containers. GAO estimated that 57,000 jobs will be created if national legislation is enacted.

The Oregon State Legislature reported that its beverage deposit law caused 350 production jobs to be lost, while truck driving jobs increased by 140 and warehouse and handling jobs increased by 575 the first year after the law was enacted. This net increase of 365 jobs for the Oregon economy represented $1.6 million in annual payroll.

About 4,500 additional jobs were created in Michigan as a result of the deposit law. These were mostly low-paying jobs for sorting and handling of containers at the retail level. Some were jobs for truck drivers where additional trucks were needed to handle empties. Approximately 350 production jobs were lost by can and glass manufacturers in Michigan, with some plant closures.

Since beverage container deposit laws reduce the amount of roadside litter and the volume of solid wastes, it is possible that some cleanup jobs are lost, but no data are available on this question.

Effects on Sales and Consumer Prices

No conclusive data are available indicating whether container deposit laws have affected total sales of soft drinks and beer. There is evidence that establishments located near the border of States with deposit laws have lost sales to neighboring States without such laws. The effect of deposit laws on retail prices cannot be analyzed directly since price changes may be attributed to many factors. There also are insufficient data to determine whether the total costs of producing and distributing beverages are higher on one-way containers or refillable containers.

Refillable bottles reduce the amount of metal, glass, and energy required to deliver beverages to consumers. Recycling provides revenue from the sale of scrap metal and glass from one-way containers, and unclaimed deposits are kept by the firms that initiate them. However, filling lines are slower for refillable bottles than for one-way containers and extra labor, space, and equipment are needed to handle the returned empties.

On balance, refillable containers appear to reduce the wholesale cost of beverages but add significantly to costs at the retail level. If the cost savings in bottling exceed the cost increases at retail, container deposit laws would reduce the costs of producing and distributing soft drinks and beer; if not, they would increase the costs of the beverages. The latter appears to be more likely based upon testimony presented before the Senate Committee on Commerce, Science and Transportation, on November 5, 1981.

Table 1. Major Provisions of State Beverage Deposit Laws

Provision	Connecticut	Delaware	Iowa
Effective date	1/1/80	July, 1982[1]	5/1/79 for liquor. 7/1/79 for all other provisions.
Beverages covered	Beer Malt beverages Mineral water Soda water Carbonated soft drinks	Beer, ale Malt beverages Mineral water Soda water Carbonated soft drinks	Beer Malt beverages Mineral water Soda water Carbonated soft drinks Liquor
Refund value[3]	5 cents or more	5 cents or more	5 cents or more
Bans pull-tabs	Yes	Yes	Yes
Bans plastic 6-pack connectors	No	Yes	No
Permits redemption centers	Yes	Yes	Yes
Penalty for noncompliance	None	Civil penalty of not less than $250 nor more than $1000 per violation	Misdemeanor—maximum $100 fine or 30 days
Per container handling fee paid to retailers	1¢	Minimum 20% of deposit	1¢

[1]As originally enacted, the law was to become effective 60 days after Maryland and Pennsylvania enacted similar legislation. This restriction was removed in a 1981 amendment.
[2]Pull-tab containers were banned by an earlier law.

Alternative Plans

Some opponents of both Federal and State beverage deposit laws have proposed alternative litter control and recycling programs. The 1972 Model Litter Control and Recycling Act of Washington State represents one idea which 11 States—Colorado, California, Virginia, South Carolina, Kentucky, Nebraska, Alaska, Tennessee, Louisiana, Washington and Connecticut—are testing (Connecticut also has a beverage deposit law). For Washington State, industries associated with products likely to end up as waste are charged annual fees—$10 to $30 for retailers and up to $2,000 for wholesalers and manufacturers. These fees, which may vary by State, are used to establish community recycling centers, educational programs to increase public awareness of litter problems, and antilitter law enforcement programs, and to conduct more research into resource recovery and energy generation from wastes.

In Washington State, the Department of Ecology coordinates the program and receives about $1.5 million a year from the annual fees. In addition to launching a major public education program, the Washington

Table 1. Major Provisions of State Beverage Deposit Laws

Maine	Massachusetts	Michigan	Oregon	Vermont	Proposed U.S. law
1/1/78	1/17/83	12/3/78	10/1/72	9/1/73	Pending
Beer, Ale Soda water Carbonated soft drinks	Beer Malt beverages Mineral water Carbonated soft drinks	Beer, ale Malt beverages Mineral water Soda water Carbonated soft drinks	Beer Malt beverages Mineral water Soda water Carbonated soft drinks	Beer Malt beverages Mineral water Carbonated soft drinks	Beer, malt beverages, mineral water, soda water, carbonated soft drinks
5 cents or more	5 - 10 cents	5 cents[4] or more. 10 cents or more	2 cents[4] or more. 10 cents or more.	5 cents or more.	5-10 cents
Yes	No[2]	Yes	Yes	Yes	Yes
Yes	Yes	No	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Civil penalty not to exceed $100	Civil penalty not to exceed $1000	Fine not less than $100 nor more than $1000	Civil and criminal penalties depending upon violation	Fine not to exceed $1000 for each violation	Fine not to exceed $1000 for each violation
1¢	1¢	None	None[5]	Minimum 20% of deposit	2¢

[3]Containers bought outside the State cannot be redeemed in the State.
[4]Lower deposit for State certified bottles (bottles that may be refilled by more than one manufacturer).
[5]Amended July, 1981 so that retailers can refuse to accept contaminated containers.
Source: State Legislative Report, National Conference of State Legislatures, Vol. 6, No. 2, Feb. 1, 1981, in part.

law requires litter bags for all automobiles and boats, fines for littering, and an adequate number of litter receptacles throughout the State.

Available data on the Washington program suggest that total litter has been reduced in the State. Supporters of the law claim that it has reduced litter by 66 percent, although independent verification is not available. The Glass Packaging Institute reported that 641 private recycling centers in Washington processed recyclable materials worth $90 million and employed over 4,000 persons in 1980.

Another alternative being used is the Clean Community Systems (CCS) campaign, which is a project of Keep America Beautiful, Inc., a national nonprofit public service organization aimed at reducing litter. Implemented in 1976, the campaign aims at changing the trash disposal habits of consumers through strong advertising. The CCS programs operate in cities in 34 States and encourage community involvement by using volunteers. CCS committees meet with community leaders and residents to propose waste management programs for their areas.

Coordinators for CCS estimated that litter was reduced an average of 32 percent in communities that had the program 1 year and 66 percent in communities that had CCS for 5 years.

Tennessee passed another type of compromise proposal in 1981. A gallonage tax on malt beverage producers and a gross receipts tax on beverage distributors will be used to increase trash collection along highways. The law took effect on April 2, 1981 and has a 3-year expiration date. This is an interesting compromise plan because it overcomes food firms complaints about handling empties and provides an opportunity to see how increased trash collection efforts might compare with other States' container deposit programs in terms of cost and effectiveness.

New Jersey recently adopted a different kind of program to encourage recycling. It does not address the problem of litter in parks and along highways. Rather, it seeks to reduce the amount of waste put in landfills by taxing landfill operators on all material accepted for disposal. Funds generated will be used to support community recycling programs and other related activities.

Conclusions

Beverage container deposit laws have clearly done what they were supposed to do—reduce litter and cut consumption of energy and raw materials. Limited available evidence suggests, however, that the increased costs of labor and equipment needed to handle the empties more than offsets these savings, so that consumers pay more for their beverages when deposit laws are enacted. Further study is needed on this question. No attempt has been made to estimate the aesthetic cost of litter to consumers.

Many consumers may have mixed feelings about mandatory deposits on containers. They often do not like to store the empties and cart them back to the stores, which may explain why one-way containers eroded sales of refillable bottles over the years and why retailers located near the border of States with mandatory deposit laws lose sales to retailers in neighboring States. However, consumers also do not like litter in public places. Given the alternatives of voluntary litter cleanup and mandatory deposit laws, the deposit laws appear to be gaining popularity with voters and with local governments that must cope with litter cleanup and find sufficient landfill space to dispose of trash. In 1981, 38 States considered some type of legislation affecting beverage containers. About 30 States specifically considered mandatory deposits.

Container manufacturers, bottlers, brewers, wholesalers, and retailers, meanwhile, all dislike being forced to collect and dispose of trash and they are likely to continue opposing any legislation that would force them to handle the empties. Due to this strong opposition, a substitute program may be desirable.

While there is always danger in oversimplification, it appears that the following factors merit consideration in a compromise proposal.

- Most people apparently believe that litter cleanup costs should be borne by beverage consumers rather than by general tax revenues.
- Voluntary litter cleanup programs that appeal to the public's pride in a clean community do not appear to be as effective as buying empties from the public.
- Many people urge that any litter cleanup and recycling program include materials other than beverage containers, claiming that the effectiveness and efficiency of broader programs are diminished when beverage container deposit laws are enacted.
- OTA and others claim that existing waste disposal channels are best equipped to handle trash and extract reusable materials efficiently.
- Food firms do not want to be forced to handle millions of empty containers. The firms are equipped to distribute food to consumers. They are not well equipped to move large quantities of potentially contaminated empty containers back through the distribution system.

An acceptable program alternative may be a program that separates beverage production and distribution from the recycling of the empty containers. One way to accomplish this is to collect a fee (1 cent-3 cents) from bottlers and brewers for each beverage container sold and use the revenues to buy back the empties using regular trash recycling channels. OTA has suggested that it might be more efficient to assess fees of this type directly on container manufacturers.

Fees could vary depending upon the scrap value of the empty containers. Refillable bottles could be exempted entirely since they are already being reused. Redemption centers have already been established in many areas for aluminum cans, and firms would begin to buy other types of containers as well if the empties had a comparable market value.

Compared to mandatory deposit laws, such a program probably would lower prices consumers pay for beverages since recycling through normal trash handling channels appears to be more efficient than having food marketing firms handle and dispose of the empties. The program could be expanded to include other types of recyclable material if desired. Another advantage of this type of program is that it relies upon positive economic incentives rather than dictating that firms alter their business practices.

Pressures for legislation will likely remain strong until the litter issue is satisfactorily resolved. Much of the impetus for action is focused at the State and local levels. Unless the States reach consistent solutions, pressure for national legislation will mount. Already some food industry representatives who, in general, are opposed to container deposit laws have urged passage of a national law so they can avoid the costs and other problems that are encountered when they attempt to comply with many different State and local requirements.■

References

Environmental Protection Agency, "Evaluation of A National Litter Tax Concept," Resource Conservation Committee Staff Background Paper No. 14.

Food Marketing Institute, "Cost of Handling Returned Beverage Containers in Supermarkets," Report No. 27, Oct. 1980.

General Accounting Office, "States' Experience With Beverage Container Deposit Laws Shows Positive Benefits," Dec., 1980.

Glass Packaging Institute, "Litter," A Position Paper, 1980.

Hatfield, Mark O. "The Beverage Container Reuse and Recycling Act of 1979." Remarks in the Senate Congressional record (daily ed.) Jan. 15, 1979: S153-S192; March 12, 1981: S2156-S2178.

Keep America Beautiful, Inc., "CCS: The First Five Years."

Michigan's Deposit Law: Second Year, Dec. 1980.

National Conference of State Legislatures, "State Beverage Container Deposit Laws," *State Legislative Report*, Feb. 1981.

Office of Technology Assessment, "Material and Energy from Municipal Waste: Resource Recovery and Recycling from Municipal Solid Waste and Beverage Container Deposit Legislation," July, 1979.