



**Tax Policy Center**  
Urban Institute and Brookings Institution

## THE TAX POLICY

## BRIEFING BOOK

*A Citizens' Guide for the  
2008 Election and Beyond*

# TAXES AND THE ENVIRONMENT

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## Taxes and the Environment: What are green taxes?

Green taxes (also called "environmental taxes" or "pollution taxes") are excise taxes on environmental pollutants or on goods whose use produces such pollutants. Economic theory suggests that taxes on polluting emissions will reduce environmental harm in the least costly manner, by encouraging changes in behavior by those firms and households that can reduce their pollution at the lowest cost. In practice, green taxes—even indirect ones, on proxies for emissions or on related goods—have rarely been imposed. Some examples can be found in Europe, but virtually none in the United States.

- Pollution can be regarded as a cost of producing goods and services, but one that is borne not by the polluter but instead mostly by others in the form of a damaged environment (in forms ranging from noxious odors to impaired health to changes in climate). A pure environmental tax aims to ensure that polluters face the true cost of their activities by charging them for the damages caused to others.
- Direct taxes on emissions are economically efficient because they give polluters an incentive to reduce their pollution up to the point where further reduction would cost more than paying the tax, and to do so in the least costly way.
- Indirect taxes, such as taxes on related goods, or alternative policies, such as mandated technology standards, may not reduce pollution in the least costly way. For example, imposing a higher gasoline tax to reduce the environmental damage from automobile emissions gives drivers no incentive to maintain their cars' pollution control equipment, and mandating pollution control equipment provides no incentive to drive less.
- Direct emissions taxes are also cost-effective because they ensure that pollution reductions are undertaken by those who can do so most cheaply. Firms that find pollution abatement costly will choose to continue to pollute and pay more tax, while those who find it less costly will cut their pollution rather than pay more tax.
- Tradable permit schemes are another alternative to emissions taxes, and can be just as cost-effective. These schemes limit the quantity of allowable emissions by issuing a fixed quantity of emissions permits, which polluters may then trade among themselves. The permit price plays a role analogous to a tax: polluters with high costs of reducing their emissions will instead buy permits that let them continue to emit, while those that can cut emissions at lower cost will do so and then sell their unused permits. Tradable permit schemes may have different distributional effects than pollution taxes, however, depending on whether the permits are given away (and to whom, and on what basis) or auctioned off. Examples of such schemes are the acid rain provisions of the U.S. Clean Air Act and the European Union's Greenhouse Gas Emission Trading Scheme.
- Subsidies for emissions reductions do not have the same effect as emissions taxes. Subsidies increase the benefits of belonging to the subsidized group and may result in more polluters, each polluting less, with no net decrease in emissions.
- One proposed green tax that has recently gained favor is a carbon tax. This would impose an excise levy on the carbon-based content of fossil fuels as a means of reducing greenhouse gas emissions that contribute to global warming. Estimates vary widely of the external costs associ-

ated with these fuels, whose combustion releases carbon dioxide into the atmosphere. In a recent review of twenty-eight published studies, the median incremental damage estimate was \$14 per ton of carbon, but a handful of estimates found damages above \$350 per ton.

**See Also**

Taxes and the Environment: What green taxes does the United States impose?

Taxes and the Environment: What green taxes do European countries impose?

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**Further Reading**

European Commission, "Emission Trading Scheme (EU ETS)."

Portney, Paul R., and Robert N. Stavins, eds., *Public Policies for Environmental Protection*, 2nd ed. (Washington: RFF Press, 2000).

Tol, Richard S. J., "The Marginal Damage Costs of Carbon Dioxide Emissions: An Assessment of the Uncertainties," *Energy Policy*, vol. 33, pp. 2064-74, 2005.

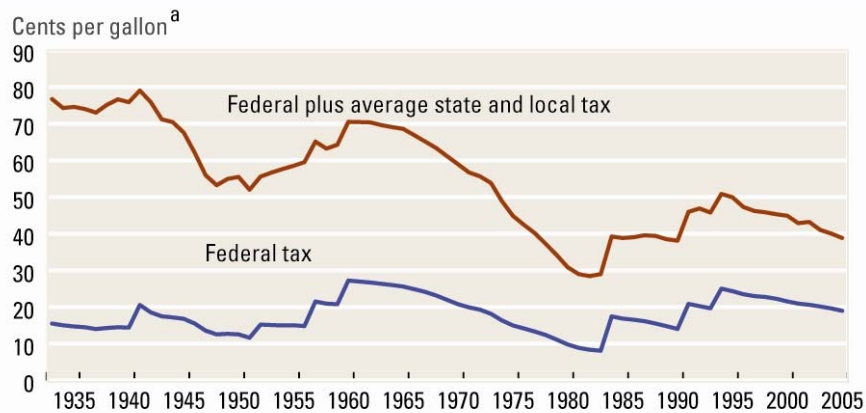
U.S. Environmental Protection Agency, "SO2 Reductions and Allowance Trading under the Acid Rain Program"  
([www.epa.gov/airmarkets/progsregs/arp/s02.html](http://www.epa.gov/airmarkets/progsregs/arp/s02.html)).

## Taxes and the Environment: What green taxes does the United States impose?

The United States imposes virtually no green taxes. Most programs to reduce pollution rely on mandatory standards such as the Clean Air Act's New Source Performance Standards (NSPS) for stationary polluters and the Corporate Average Fuel Economy (CAFE) standards for automobiles. Among the few green taxes imposed in the United States at the federal level are the "gas guzzler" tax on new cars that exceed fuel efficiency standards, a tax on ozone-depleting substances, and miscellaneous taxes on fertilizers and pesticides used in agriculture.

- Numerous taxes and user fees are imposed at the state and local level, including pay-per-bag disposal charges for municipal solid waste and deposit-refund schemes for beverage containers and automobile batteries. In general, such policies tax pollution only indirectly and are too low to affect behavior measurably.
- Proponents often cite the gasoline tax as a green tax. The federal gasoline tax is currently 18.4 cents a gallon, and state taxes add an average of 20 cents more. Adjusted for inflation, gasoline tax rates have fallen to about half their rates in the 1930s (figure 1). Some economists do not consider the current gasoline tax to be a green tax, even indirectly, because over 80 percent of the revenue is used to subsidize road construction, which ultimately encourages more pollution.

Figure 1. U.S. Gasoline Tax Rates, 1933-2005

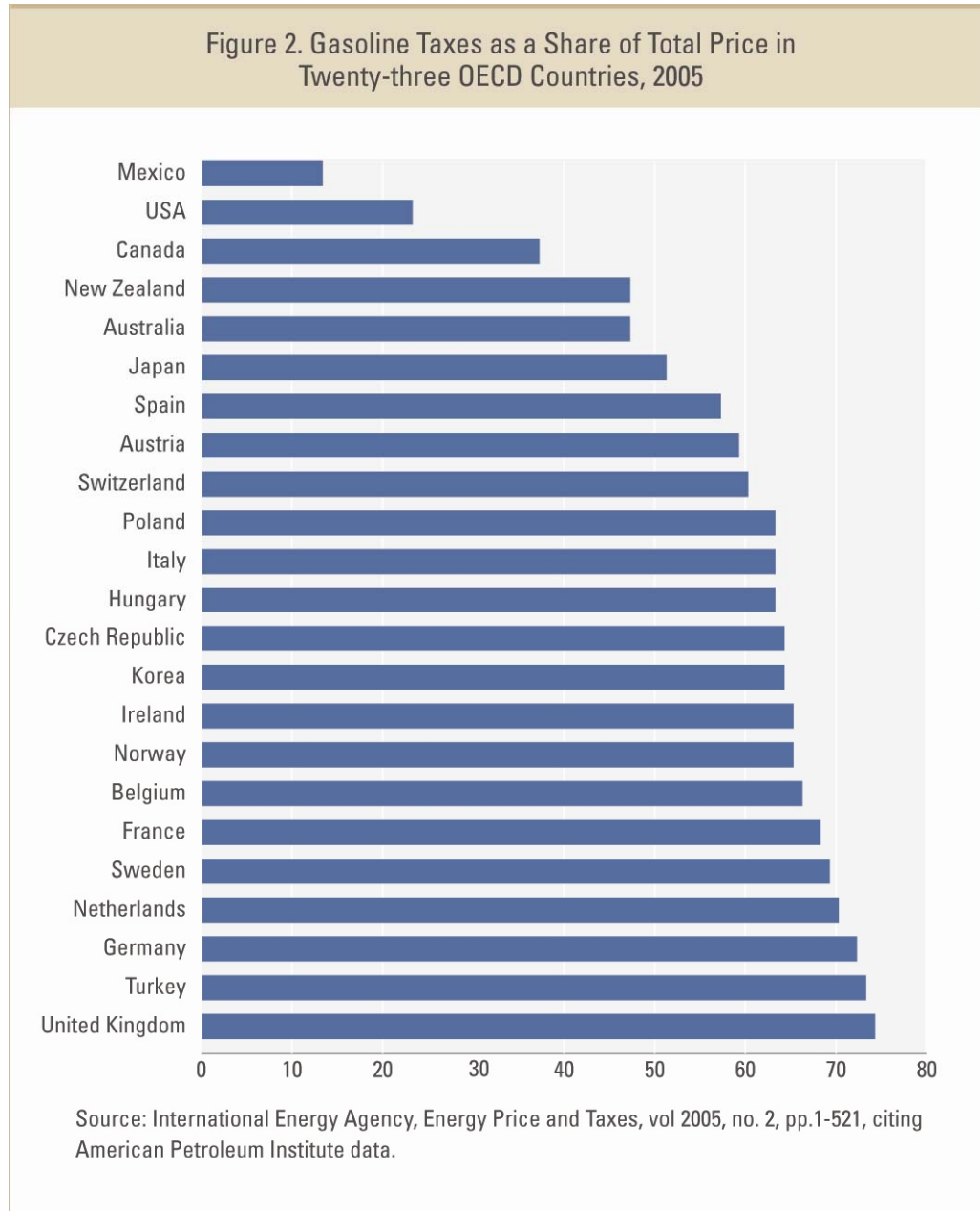


Notes:

a. Adjusted for inflation, 2006 dollars

Source: Federal Gasoline Excise Tax, 1932-2005, Tax Foundation, Congressional Research Service, [www.taxfoundation.org/taxdata/show/1067.html](http://www.taxfoundation.org/taxdata/show/1067.html). State gasoline tax rates are calculations made by author based on data from the U.S. Department of Transportation, Federal Highway Administration, Table MF-221.

- Advocates of increasing the gasoline tax, such as Harvard economist Gregory Mankiw, assert that the higher tax would address both pollution and other costs of driving not borne by the individual driver. These costs have been estimated at over 80 cents a gallon, divided approximately equally among pollution, congestion, and accident risk.
- In the United States, sales and excise taxes on gasoline make up much less of the total cost of fuel than in other countries (figure 2).



**See Also**

Taxes and the environment: What are green taxes?

Taxes and the environment: What green taxes do European countries impose?

**Data Sources**

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Author: Arik Levinson  
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**Further Reading**

Hoo, Sonya, and Robert D. Ebel, "An International Perspective on Gasoline Taxes," *Tax Notes*, p. 1565, September 26, 2005.

Mankiw, N. Gregory, "Raise the Gas Tax," *The Wall Street Journal*, p. A12, October 20, 2006.

Parry, Ian, and Kenneth A. Small, "Does Britain or The United States Have the Right Gasoline Tax?" *American Economic Review* vol. 95, pp. 1276-89, 2006.

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## Taxes and the Environment: What green taxes do European countries impose?

Many European countries have used pollution taxes more than the United States, imposing taxes on emissions of common air pollutants such as sulfur dioxide and nitrogen oxides. The European Union has also instituted a "cap-and-trade" system to limit carbon dioxide emissions as a way of meeting targets for limiting greenhouse gas emissions agreed to in the Kyoto Protocol. Almost all of these allowances are given away to polluters. Only a handful of member states reserve any emissions allowances to be auctioned off, and these auctioned allowances account for only a tiny fraction of the total.

- The European Commission defines an environmental tax broadly as "a tax whose base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment." This definition includes taxes that were not enacted with environmental goals in mind. In fact, according to Eurostat, most of these taxes are on energy (76 percent of all environmental tax revenue) and transportation (21 percent), leaving a small fraction for pure pollution taxes.
- Revenue from these taxes is equivalent to about 3 percent of GDP in Europe, and 7 percent of total revenue (figures 1 and 2). That fraction has not increased in recent years, despite growing concern about the environment and growing enthusiasm for market-based environmental policies.

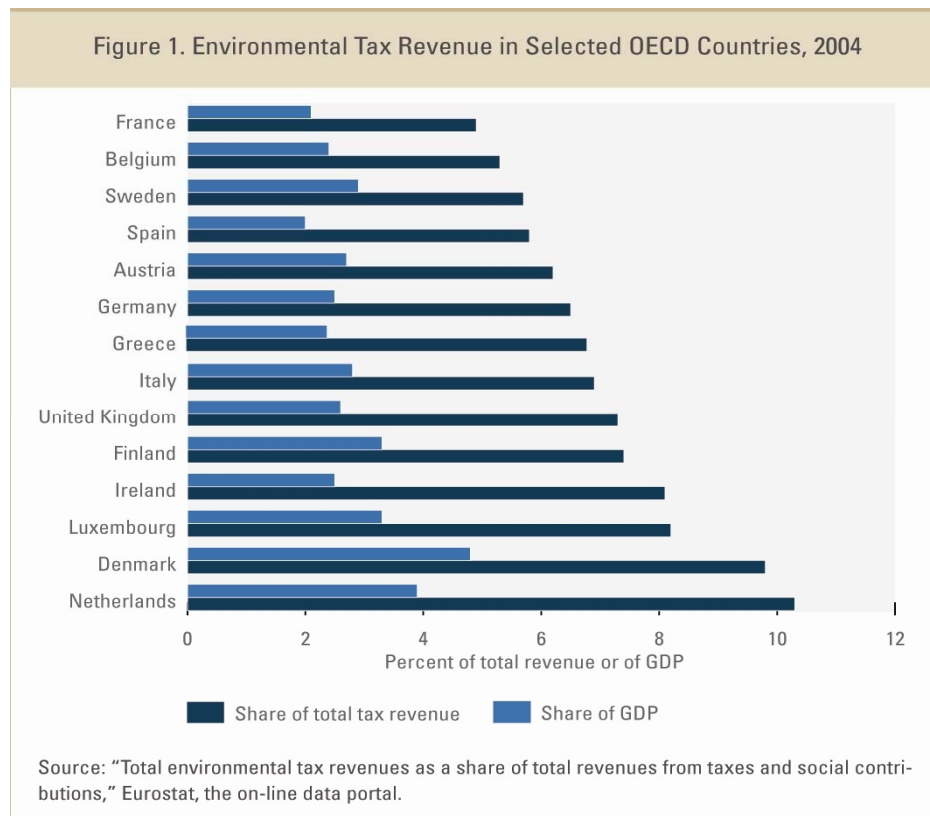
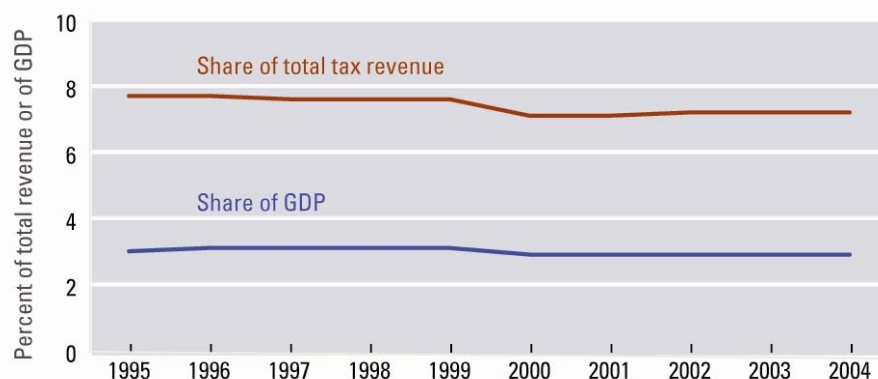


Figure 2. Environmental Tax Revenue in Fifteen EU Countries, 1995-2004



Source: "Total environmental tax revenues as a share of GDP," Eurostat, the on-line data portal.

### See Also

Taxes and the Environment: What are green taxes?

Taxes and the Environment: What green taxes does the United States impose?

### Data Source

Eurostat, *Environmental Taxes in the European Economy 1995-2003* (Luxembourg, 2007).

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### Further Reading

Ellerman, A. Denny, and Barbara K. Buchner, "The European Union Emissions Trading Scheme: Origins, Allocation, and Early Results," *Review of Environmental Economics and Policy*, vol. 1, pp. 66-87, 2007.

Sternier, Thomas, *Policy Instruments for Environmental and Natural Resource Management* (Washington: RFF Press).