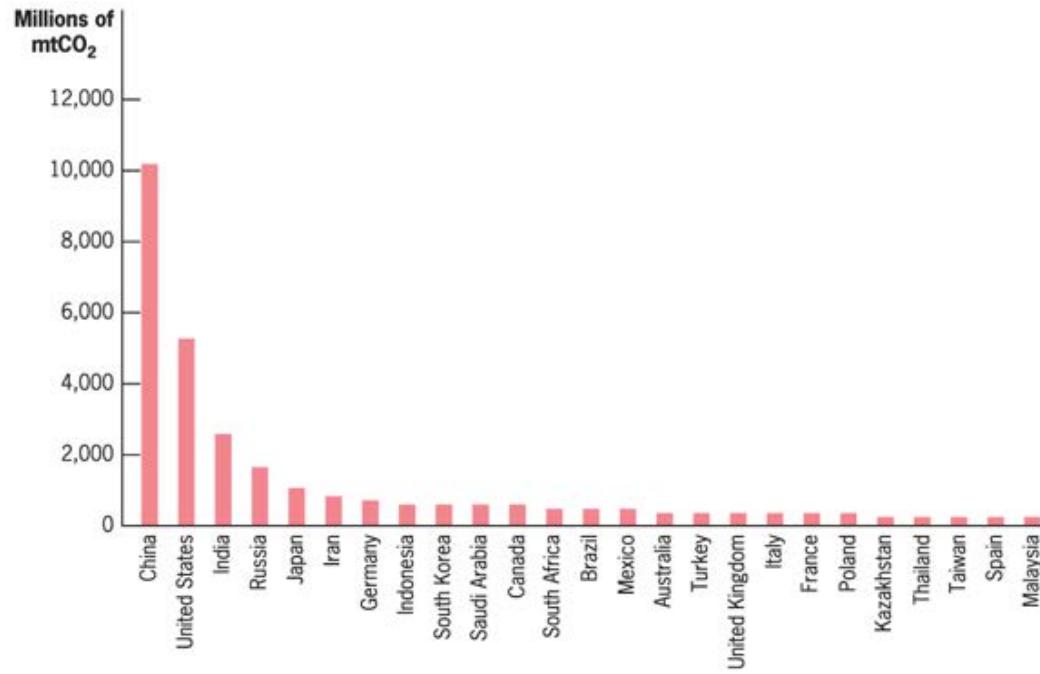


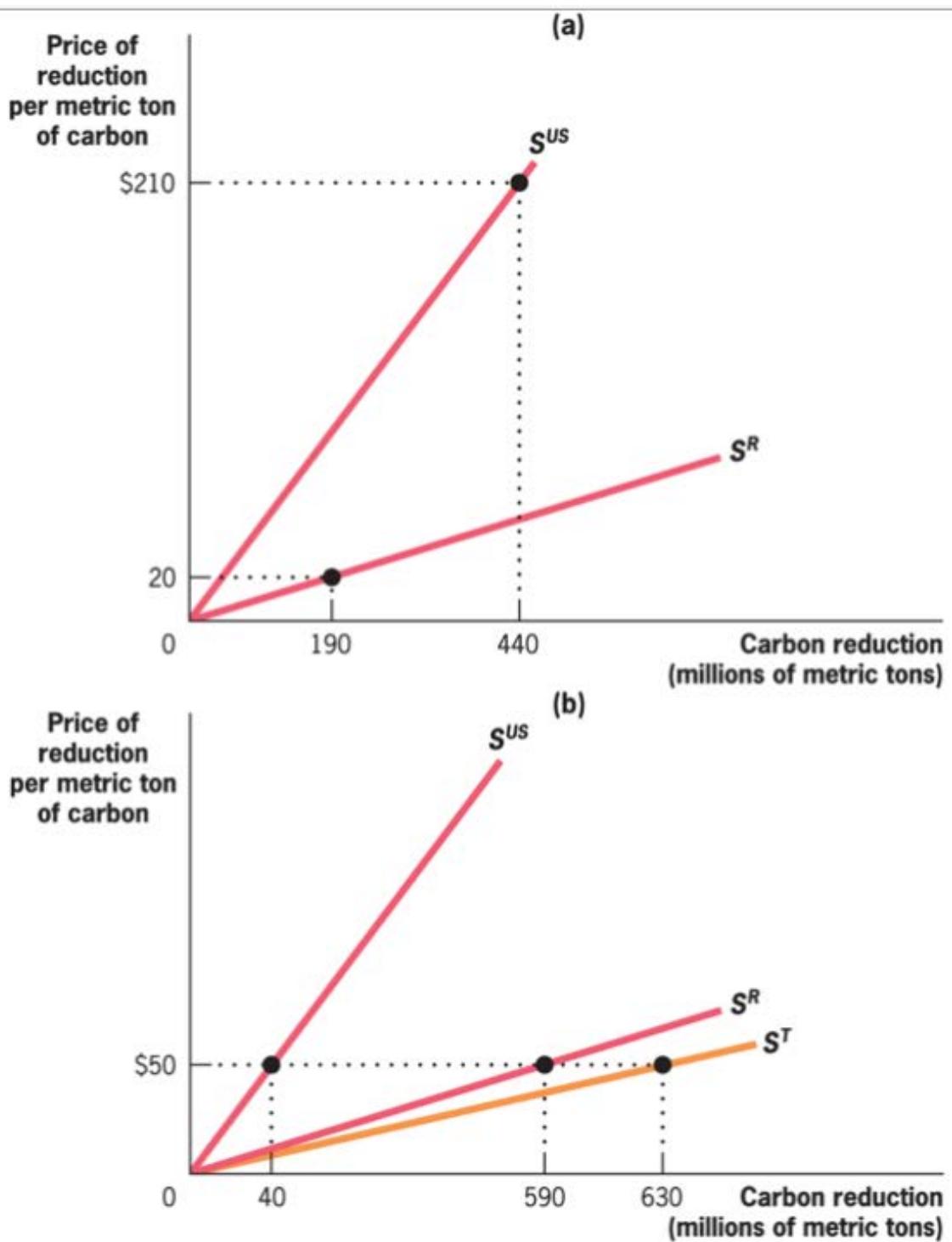
**FIGURE 6-1 Trends in Emissions in Counties That Were and Were Not Subject to the CAA** • In the set of counties that had low levels of TSPs before the CAA (attainment areas), there was little change in emissions over this time period. In the set of higher-emitting counties that were subject to the restrictions of the regulations (nonattainment areas), TSPs fell dramatically after 1971.

Data from: [Chay and Greenstone \(2003a\), Figure 2a.](#)



**FIGURE 6-2 Top 25 Fossil Fuel CO<sub>2</sub> Emitters in 2019** • The United States and China together accounted for more than 40% of the world's total CO<sub>2</sub> emissions in 2019.

Data from: [Friedlingstein et al. \(2020\)](#).



**FIGURE 6-3 The Benefits of Trading** • The supply curve of reductions for the United States ( $S^{US}$ ) is much steeper than that for the rest of the world ( $S^R$ ). If the United States has to do all of its reductions by itself (panel a), it costs \$210 per ton of reduction. In that case, the United States reduces by 440 million metric tons (mmt) and the rest of the world reduces by 190 mmt. If the United States and other nations can trade (panel b), then the relevant supply curve is  $S^T$ . In that case, the price per ton falls to \$50, with the rest of the world reducing by 590 mmt and the United States reducing by only 40 mmt.



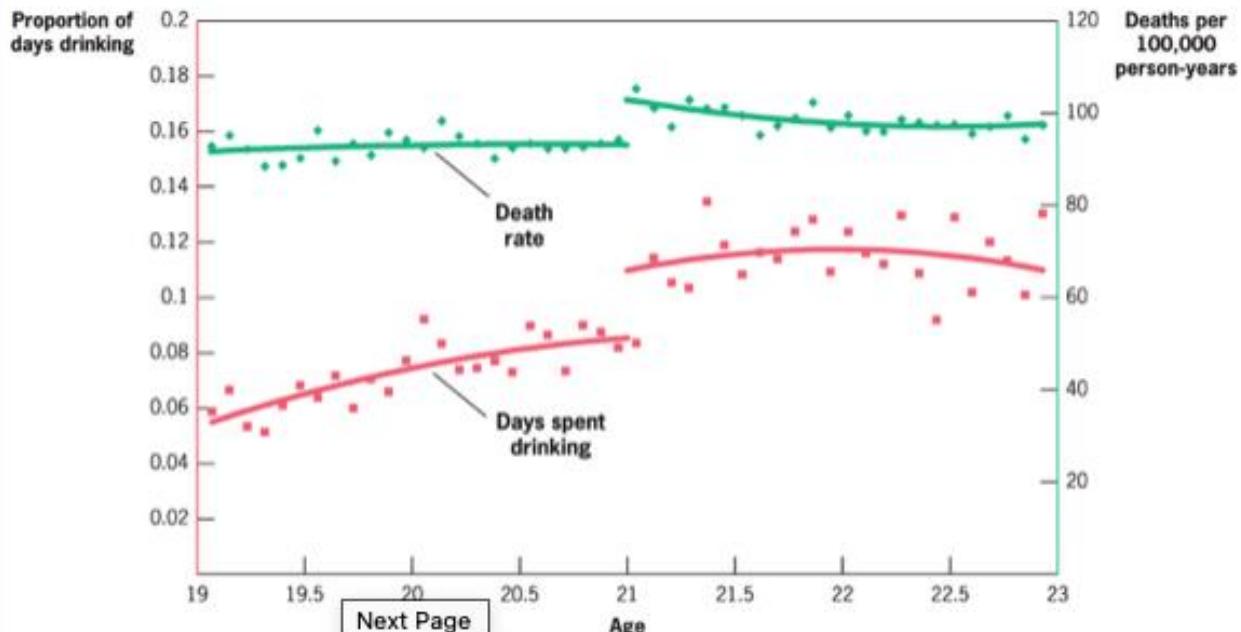
**FIGURE 6-4 Annual Percentage of U.S. Adults Who Smoke Cigarettes, 1955–2019** • Before the U.S. Surgeon General's report on the harmful effects of smoking came out in 1964, the rate of smoking in the United States was fairly flat. After, the rate fell steadily.

Data from: [Centers for Disease Control and Prevention \(2015, 2019\)](#).

**TABLE 6-1 The Effects of Smoking: Externalities or Not?**

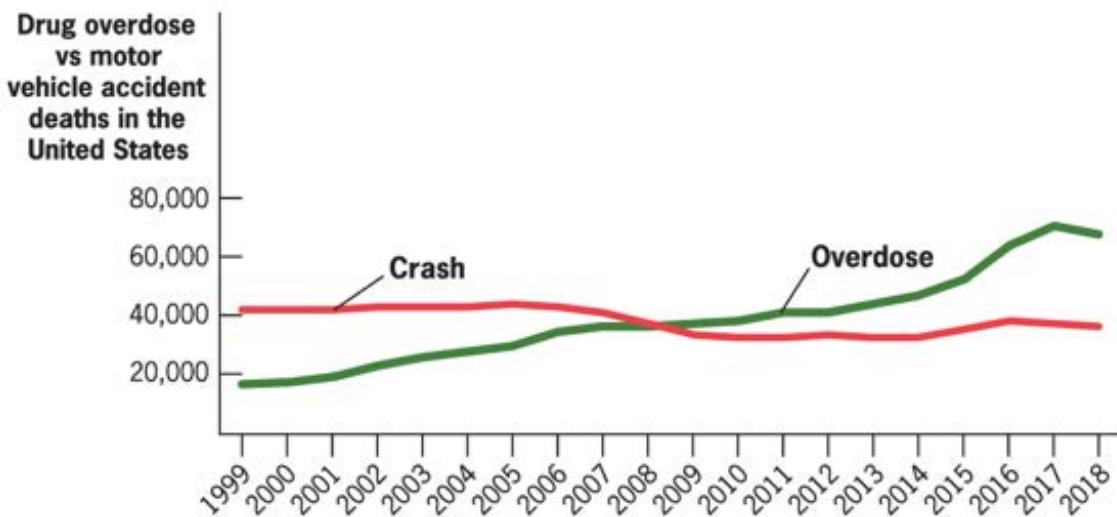
Effect	Not an externality if ...	An externality if ...
<b>Increased health care costs</b>	Insurance companies actuarially raise premiums for smokers.	Many individuals are insured by entities that spread the health costs of smokers among all of the insured; also, the health costs of the uninsured are passed on to others.
<b>Less-productive workers</b>	Employers adjust individuals' wages according to productivity.	Employers do not adjust wages according to individual productivity, so that they must lower wages for all workers to offset productivity loss.
<b>Increased number of fires</b>	Smokers set fire only to their own property, requiring no help from the fire department, and insurance companies adjust premiums according to smoking status.	The fires damage nonsmokers' property, raise the cost of the local fire department, or raise fire insurance premiums for all.
<b>Earlier deaths</b>	Smokers do not pay Social Security taxes or would not incur medical costs later in life.	Nonsmokers save money because smokers die too early to collect full Social Security benefits and because their deaths reduce the high health costs near the end of life (a positive externality).
<b>Secondhand smoke effects</b>	The effects are minimal or smokers account for their families' utility when deciding to smoke.	The effects are serious and smokers do not account for their families' utility when deciding to smoke.

Cigarette smoking has a number of physical and financial effects, but in many cases, they may not be externalities. The first column of this table lists examples of the effects of smoking. The second column discusses the situations under which these are not externalities, and the third column discusses the situations under which they are externalities.



■ **FIGURE 6-5 Changes in Drinking and Mortality Around Age 21** • There is a strong “regression discontinuity” around age 21 for both the proportion of days spent drinking and the death rate.

Data from: [Carpenter and Dobkin \(2009\)](#).



■ **FIGURE 6-6 Drug Overdoses Surpass Motor Vehicle Deaths** • Driven largely by the increase in opioid addiction, drug overdose deaths have been on the rise since the 1990s, even as other preventable deaths, such as motor vehicle accidents, have decreased.

Data from: [https://www.cdc.gov/nchs/data/databriefs/db356\\_tables-508.pdf#1](https://www.cdc.gov/nchs/data/databriefs/db356_tables-508.pdf#1) <https://www.iihs.org/topics/fatality-statistics/detail/yearly-snapshot>

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