CHAPTER 6

Taxing Twenty-First Century Sins

If one thing is clear from the preceding chapters, it is that paternalism is a robust foundation for taxing sin. Arguments about guarding public health and neutralizing externalities transformed once-temporary taxes on alcoholic beverages and tobacco products into permanent features of government budgets around the globe. The same arguments helped paternalists extend sin taxes to soda and marijuana.

There is little to no indication that their secular crusade will end anytime soon. Paternalists have realized as of late that the world is much more sinful than they previously realized. It is full of billions of individuals making a lot more choices that commit an error, fall stray, or miss the mark—all of it worthy of taxation’s redeeming grace.

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Paternalists have already placed much of what grocery stores sell in their crosshairs. Beer, wine, and spirits stocked on shelves in the alcohol department are taxed, often heavily, to deter drinking. Cigarettes and other tobacco products are taxed to accomplish the same goal—and that’s if they are allowed for sale at all. Taxes have also begun to encroach on the soda aisle. And taxes will eventually reach whatever department sells marijuana and CBD-infused merchandise.

The deli is next. Perhaps the local sandwich shop, too.

The reason is that paternalists have recently declared that the choice to eat meat is sinful. Given that humans have eaten meat for millions of
years, it’s recent classification as detrimental to our survival is curious. Admittedly, the domestication of cattle, goats, pigs, and sheep—and the widespread meat eating that came with it—took place relatively recently, within the last ten thousand years. Meat consumption in many parts of the world surged to new highs during the twentieth century and later plateaued. Although beef’s popularity peaked around 1970, pork and poultry remain an essential part of human diets worldwide.¹

It took time, but all that meat eating finally roused paternalistic notice. Some paternalists grew apprehensive about meat’s negative impact on the environment. Products made from livestock, which consume vast amounts of water, produce substantial greenhouse gasses, and require large areas of land for grazing, are said to have especially devastating effects on climate change.

Other paternalists contend that meat consumption is a threat to public health. The World Health Organization’s International Agency for Research on Cancer lists processed meats, such as bacon and sausage, as “possibly carcinogenic.” A 2015 report from the Agency advised that each daily meat serving increases an individual’s colorectal cancer risk by 18%.² The same year, the Physician’s Committee on Responsible Medicine—a “nonprofit that promotes a vegetarian or vegan diet”—reprimanded the United States Department of Agriculture for pushing meat into schools through the National School Lunch Program. The organization declared that meat contributes to the “childhood obesity epidemic” and stops children from eating healthier foods such as whole grains, fruits, and vegetables.³

Overall, paternalists locate meat at the nexus of a “diet-environment-health trilemma.”⁴ They increasingly seek government action to reduce meat’s externalities and nudge individuals toward vegetarian choices,

¹ Larsen (2012). Data collected by the Organization for Economic Co-operation and Development (“OECD”) reveal that meat consumption is relatively high in the United States, but not necessarily the highest compared to other countries. For example, beef consumption is markedly higher in Argentina, pork consumption is much higher across the European Union, China, Korea, and Vietnam, and Israelis consume far more poultry than others. Across the board, meat consumption is low in countries such as India, Thailand, and Nigeria. See OECD iLibrary, Agricultural Output statistics.
² Boseley (2015).
³ Moodie (2015).
⁴ Tilman and Clark (2014).
which paternalists believe are less sinful. That includes lobbying for taxes and other public policies that increase meat prices. It may also include treating carnivores like smokers. In 2018, a former United Nations official offered this gem: “If they want to eat meat, they can do it outside the restaurant.”

Meat paternalism has yet to attract the same level of attention as the other sins but enjoys the backing of notable interest groups. People for the Ethical Treatment of Animals (“PETA”) calls on governments to impose a meat tax that would apply to everything from livestock to poultry, fish, and other animal flesh. “Cigarettes, alcohol, and gasoline are already federally taxed,” PETA notes on its website, “but although meat consumption is a health hazard and meat production is a leading source of environmental degradation, the meat industry has gotten off easy.”

The Food Ethics Council, a British nonprofit organization committed to environmentalism, humane treatment of animals, and eliminating hunger, declared in 2019 that it was time for society to “wake up and challenge our ultra-processed food obsession by taxing it.”

Experts have also supported meat paternalism. Chatham House, a British think tank, issued a report in 2015 recommending a tax on “meat and other unsustainable products” to “deliver on the public health agenda while also meeting environmental objectives.” A 2018 study coauthored by 23 experts predicted that humanity will struggle to feed itself and limit climate change damage unless meat consumption is drastically reduced. To that end, the study proposed that governments implement a meat tax.

The doctrine of meat paternalism has been carried to public knowledge by the media. A 2012 segment on National Public Radio informed listeners that the energy required to make a quarter-pound hamburger, an American favorite, was “enough to power a microwave for 12 hours”—an estimate that the radio network later acknowledged was wrong. The

5 Lomborg (2018).
6 People for the Ethical Treatment of Animals (2020).
7 The press release, “Food Policy on Trial: In the Dock—Meat Tax,” was issued on May 28, 2019.
8 Wellesley et al. (2015).
9 Authors (2018).
real number was 18 minutes.\textsuperscript{10} Similarly, the \textit{Los Angeles Times} created an interactive feature for its website in 2015 that helped users visualize their diet’s environmental impact by letting them create a hypothetical meal with different servings of meat, vegetables, and beverages. The feature calculated how many hundred gallons of water the meal would take to produce in real life.\textsuperscript{11}

That coverage stopped short of condemning meat and instead provided information to inquisitive consumers. Other media coverage is distinctly more ominous about the perils of eating meat. A 2016 headline in the British \textit{Telegraph} informed readers: “Ditch sausages for a longer life, say Harvard scientists.”\textsuperscript{12} The same year, visitors to CNN’s website were told: “Meat-eaters may have a higher risk of death, but plants are the answer.”\textsuperscript{13} Not to be outdone, a CNN story in 2020 cautioned readers that “[r]ed and processed meat are not ok for health, study says, despite news to the contrary.” The article began, “[i]f you’ve been swayed by recent reports that red and processed meat isn’t harmful to your health, put down that bacon – there’s bad news.”\textsuperscript{14}

Like those who focus their efforts on taxing other sins, meat paternalists offer research that corroborates their arguments about meat’s impact on the environment and public health. Some aspects of their platform, such as livestock’s effect on the environment, are hard to dispute. While livestock does have a negative effect, production techniques are much more efficient and less detrimental now than ever before.\textsuperscript{15} Furthermore, discouraging meat consumption with a tax or through other public policies will have, at most, a small impact. That is because most of a person’s environmental footprint is not tied to their diet, but rather to other lifestyle activities, including electricity usage and mode of transportation.\textsuperscript{16} More importantly, discouraging meat consumption by making it more expensive or by subsidizing nonmeat products forces a tradeoff. It

\begin{itemize}
  \item \textsuperscript{10}Barclay (2012).
  \item \textsuperscript{11}The feature is available at https://graphics.latimes.com/food-water-footprint/.
  \item \textsuperscript{12}Knapton (2016).
  \item \textsuperscript{13}Howard (2016).
  \item \textsuperscript{14}LaMotte (2020).
  \item \textsuperscript{15}Capper (2011).
  \item \textsuperscript{16}Hallström et al. (2015) state dietary changes “can reduce the diets GHG [greenhouse gas] emissions and land use demand by up to 50%,” but as Lomborg (2018) notes, “(f)or
may save consumers money and reduce some externalities, but the savings increases consumers’ disposable income that can then be spent on other activities more harmful to the environment than meat.\footnote{Grabs (2015).}

Paternalistic claims about meat’s impact on public health are also more nuanced than they initially appear. The study that compelled CNN to urge readers to “put down that bacon” did report that consuming extra servings of processed meat was associated with an increased risk of death from cardiovascular disease, but the increase was merely a few percent.\footnote{Zhong et al. (2020).}

Far more troubling than histrionic headlines is the fact that the research often used by meat paternalists is poor social science. Many studies merely report the findings of statistical simulations, and like the models utilized to justify soda, alcohol, and tobacco paternalism, they depend on assumptions that do not reflect reality.

Consider a simulation study that concluded a meat tax would reduce healthcare costs and lessen the “number of deaths attributable to red and processed meat.” The study’s authors assumed that eating meat was a causal factor in death and disease. But that assumption is, at best, debatable. They also failed to incorporate dietary changes that might transpire as a result of higher meat prices. One possibility is that individuals substitute for meat with other unhealthy foods. The authors also treated lost productivity as an externality—yet again, that is an internality—and failed to calculate the rise in healthcare and other costs that would be created by reducing premature death. Yet even with several questionable assumptions, the model estimated that a meat price increase of between seven and 47% would reduce greenhouse gas emissions by just one percent.\footnote{Springmann et al. (2018).}

Observational studies are not necessarily any better than simulations. One hurdle to evaluating how dietary behaviors change after public policy changes is experts’ reliance on self-reported food intake data, which is often inaccurate. Bowing to social pressure, many study participants underreport consumption of foods perceived as unhealthy, just as they might underreport or lie about smoking tobacco or drinking alcohol. Self-reported food data have other flaws; many vegetarians, for instance,
report buying meat.\textsuperscript{20} Even if the data were error-free, it is next to impossible for any research method to separate the impact one aspect of a person’s diet has on their health from other parts of their diet. The need to disentangle the effects of environmental and lifestyle factors introduces additional complexity.\textsuperscript{21}

Many studies’ credibility is further damaged by experts’ assumption that correlation proves causation. One review of 20 studies concluded that meat consumption is associated with heart disease and diabetes, but the authors conceded that most of the studies they evaluated did not determine whether eating meat caused those problems.\textsuperscript{22} A separate review concluded that red and processed meat consumption was also associated with other adverse health outcomes, but the authors conceded that other factors might be responsible.\textsuperscript{23} And another review concluded that meat consumption imposes a higher risk of stroke, but the authors failed to demonstrate a causal relationship.\textsuperscript{24}

It gets worse. Studies favorable to meat paternalism are routinely tainted by false positives and exaggerated interpretations of meat’s health risks. Nutrition and health research studies are so bad, according to one commentary, that they are “difficult to reconcile with good scientific principles.”\textsuperscript{25}

Further undermining the case for meat paternalism is the fact that several studies report no reason to believe that meat consumption is a health risk.\textsuperscript{26} In fact, more harm may come from a diet with little or no meat, because it is a good source of protein, amino acids, and certain vitamins and minerals that cannot be easily replaced with a vegetarian diet. While studies favorable to meat consumption are often afflicted by the same flaws as anti-meat studies, they warrant no less attention. For example, a 2004 study of Austrians over age 15 linked a vegetarian diet to “higher incidences of cancer, allergies, and mental health disorders” as

\textsuperscript{20} Lusk and Norwood (2016).
\textsuperscript{21} Leroy and Cofnas (2019).
\textsuperscript{22} Micha et al. (2010).
\textsuperscript{23} Wang et al. (2016).
\textsuperscript{24} Chen et al. (2013).
\textsuperscript{25} Ioannidis (2018).
\textsuperscript{26} Kruger and Zhou (2018) and Lippi et al. (2015).
well as a “higher need for health care.”²⁷ A review of 20 studies found that vegetarians and vegans had weaker bones in the neck and spine and higher rates of bone fracture.²⁸ Other studies tie meat-restricted diets to depression and poor mental health.²⁹ All things considered, it may be, as two experts observed, that “the theory that (meat) can be replaced with legumes and supplements is mere speculation.”³⁰

Unfortunately, because there are currently no meat taxes comparable to those on the other sins, it is impossible to evaluate their real-world impact on the environment and public health. Still, lessons can be drawn from other food-based taxes. So-called fat taxes and junk food taxes levied on foods high in saturated fat, sodium, and sugar are a clear analogue.³¹ Simulation studies typically report that food taxes are a useful policy to accomplish various public health objectives.³² But more rigorous studies show that any benefits are likely to be negated by substitution for other, less healthy foods.³³ They also show that food taxes have a disproportionate burden on the poor and the elderly.³⁴

Many of those unintended consequences occurred in Denmark after policymakers in 2011 implemented a tax on foods containing over 2.3% saturated fat, including many dairy products and some meats. The levy was never popular with the public, and it ended in 2012.

Whether or not it was effective is a matter of dispute. One study reported that purchases of butter, margarine, and oil fell after the tax went into effect, but also indicated that consumers bought more from discount stores with lower prices.³⁵ Another study found evidence of product substitution from high- to low-fat products that, as noted in

²⁷ Burkert et al. (2014).
²⁸ Iguacel et al. (2019).
²⁹ Matta et al. (2018) and Nezlek et al. (2018).
³⁰ Leroy and Cofnas (2019).
³¹ So-called junk food taxes are popular among some public health groups and professional organizations. For example, in 2003, the British Medical Association proposed a 17.5% value-added tax on fatty foods.
³² Eyles et al. (2012) and Mytton et al. (2007).
³³ Epstein et al. (2012).
³⁴ Chouinard et al. (2007).
³⁵ Jensen and Smed (2013).
Chapter 2, can facilitate higher food consumption and weight gain. Cross-border shopping—in Denmark’s case, buying foods in neighboring Germany or Sweden—also mitigated the tax’s impact. Sales of butter at one Danish retailer rose after the tax, with demand boosted thanks to a local cooking show “in which the hosts stress how desirable using butter is.”

Considering all of the available evidence, there is little reason to believe that meat consumption is significantly harmful to the environment or to public health, or that the benefits of a meat tax outweigh its costs and unintended consequences. Meat is another sin that does not need forgiving.

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Just as it is gradually becoming impossible to exit a grocery store or restaurant without paying one or more sin taxes on foods and beverages, it is also growing more difficult to carry those purchases home without being charged another fee. That is because paternalists have added the choice to use plastic bags to the list of tax-worthy sins.

For several decades those plastic bags, also known as carryout bags and carrier bags, were a ubiquitous bookend to the shopping experience. Although first patented in the 1950s, plastic bags achieved popularity in the 1980s as an alternative to paper bags. Retailers valued the bags’ lower cost and advertising potential, and customers appreciated their convenience. They also liked the bags’ durability. Even though plastic bags are sometimes referred to as “single use” bags, customers often reuse them multiple times.

But paternalists argue that plastic bags’ convenience carried a steep environmental cost. The high-density polyethylene (“HDPE”) in some bags comes from oil, the quintessential environmentalist enemy. Experts say the plastic used in some bags will take hundreds of years to biodegrade. In the meantime, bags congest water transport systems, wreak havoc on marine life, and litter public areas.

36 Jensen et al. (2016).
37 Bomsdorf (2012).
38 That concern is misplaced. Most HDPE is sourced from natural gas, not oil. HDPE is used in several other consumer products, including certain types of outdoor furniture, pipes, and beverage containers that have—for now—escaped selective taxation.
By the early twenty-first century, paternalists frequently warned society about its sinful, “toxic love story” with plastic. They lobbied governments to intervene with a plastic bag tax or outright prohibition. Hypothetically, either restriction would nudge people to choose less sinful, multiuse alternatives, like cotton bags, which would reduce the amount of plastic waste and its environmental externalities. Experts said taxes were an effective way to accomplish the behavioral change; one study estimated that a tax would reduce bag usage by 40%.

Plastic bag paternalism was carried to the mainstream by the media and special interest groups. Media coverage of the Great Pacific Garbage Patch, a massive trash pile floating atop the Pacific Ocean, raised collective anxiety over plastic pollution. Large environmental organizations, including Earth Justice, the Nature Conservancy, the Ocean Conservancy, and the Sierra Club advocated for either plastic bag prohibition or taxes. Their advocacy was assisted by groups that focus on reducing plastic use in general, like the Plastic Pollution Coalition, which counts celebrities and several other groups among its supporters, including Greenpeace USA and the Clean Seas Coalition. Smaller, targeted organizations like California vs. Big Plastic—now known as Californians Against Waste—argue for the merits of plastic bag paternalism at the state and local level.

Plastic bag restrictions have gained a foothold worldwide. Colombia, Denmark, England, Greece, and Ireland have imposed taxes. India, Kenya, New Zealand, and Rwanda have instituted prohibition. Controls in the United States more than doubled between 2009 and 2014 alone. A few states enacted prohibition, and in 2019, a statewide tax took effect in Connecticut. A growing number of American local governments pursued a combination of prohibition and taxes.

Plastic bag paternalism has even found success outside the bounds of the traditional nation-state. In 2018 the Shabab, an East African terrorist group with ties to Al Qaeda, banned plastic bags in territories under its control. According to Mohammed Abu Abdullah, a Shabab governor,

39 Freinkel (2011).
40 Homonoff (2018). Like the pattern observed with other sin taxes, initial declines may not persist over time. A study of South Africa’s plastic bag tax found that although the levy initially reduced bag use, demand eventually returned to normal (Dikgang et al. 2012).
41 Morris and Seasholes (2014).
The bags “pose a serious threat to the well-being of humans and animals alike.”\(^{42}\)

That is not necessarily true. Although it may come as a shock to paternalists, and Shababi leaders, most environmental plastic waste does not come from shopping bags. According to *National Geographic*, a majority of the plastic in the Great Pacific Garbage Patch is “abandoned fishing gear – not plastic bottles or packaging drawing headlines today.”\(^{43}\) Moreover, most of the plastic in oceans does not come from the United States or European countries, where plastic bag taxes and prohibition have gained popularity, but from the rest of the world. Two-thirds of plastic pollution comes from Asia alone. Central America, South America, and Africa are also heavy polluters.\(^{44}\)

Assertions of rampant plastic bag litter on land are also mistaken. Environmental Resources Planning, an American research and consulting firm that specializes in analyzing litter’s impact on the environment, notes that many litter surveys are carried out by volunteers and conducted without proper research protocols. The firm’s more rigorous litter surveys show that in several large cities, including Toronto, Ontario as well as San Francisco and San Jose, California, plastic bags represent no more than two percent of litter.\(^{45}\) Other items, such as food wrappers, plastic beverage bottles, and metal beverage cans, are far more commonplace.\(^{46}\)

While it runs counter to conventional wisdom, another tenet of plastic bag paternalism—that plastic waste will take hundreds of years to biodegrade—is unsettled. Modern plastic bags have only existed for several decades, and there is no observational evidence of how long their breakdown actually takes. Experts’ best guesses are instead based on models. But some research indicates that plastics decompose much more rapidly than experts say. A 2019 study found that polystyrene, an oft-criticized

\(^{42}\) Callimachi (2018).

\(^{43}\) Parker (2018).

\(^{44}\) Lebreton et al. (2017).

\(^{45}\) Stein (2013).

\(^{46}\) See “Ocean Conservancy ICC Data—Plastic Grocery Bags in Beach Litter,” a brief issued by Environmental Resources Planning in September 2017. The brief notes that 43.5% of litter is “balloons, rope, food bottles, fishing line, straps, nets, gloves, floats, buoys, tampon applicators, light bulbs, light sticks and syringes.” Perhaps these should be taxed instead.
material found in Styrofoam, breaks down within decades—not, as experts often claim, hundreds or thousands of years.\textsuperscript{47}

Far more damaging to the case for plastic bag paternalism is that taxes and prohibition are not beneficial to the environment. Studies show that plastic bag use does decline after either restriction goes into effect, but that’s not necessarily a net gain for the environment or society.

One reason why is substitution. Some retailers attempt to get around plastic bag taxes and prohibition by offering customers alternatives that contain more plastic.\textsuperscript{48} A 2019 study concluded that a plastic bag ban in California eliminated 40 million pounds worth of bags—an apparent success—but spurred a 12 million pound increase sales of larger trash bags. Sales of small trash bags that are usually thicker and contain more plastic than the prohibited bags they replace increased 120%.\textsuperscript{49}

That is not the only kind of substitution. Some consumers utilize reusable bags made from cotton or other materials. But those bags are even worse for the environment than plastic bags. For proof, look no further than Denmark’s Environmental Protection Agency, which evaluated how various kinds of bags performed across 15 measures of environmental impact. The Agency concluded that plastic bags were the best performer. Their analysis estimated that, to have a lesser environmental impact than a plastic bag, an individual would have to reuse a cotton bag 7100 times. If the bag is manufactured from organic cotton, then they would have to reuse the bag 20,000 times. Anything less, and a plastic bag has a smaller impact.\textsuperscript{50} The Dutch study was not unique in this regard. A similar analysis by the United Kingdom’s Environment Agency arrived at the same conclusion.\textsuperscript{51}

Plastic bag restrictions also impose other unintended consequences. Reusable bags harbor bacteria and increase the risk of cross-contamination and infection. Amid the coronavirus pandemic in 2020, the governor of New Hampshire urged stores and customers to return to using

\textsuperscript{47}Ward et al. (2019).

\textsuperscript{48}Homonoff et al. (2020).

\textsuperscript{49}Taylor (2019a).

\textsuperscript{50}See “Life Cycle Assessment of Grocery Carrier Bags,” a report issued by the Environmental Protection Agency in 2018 (Environmental Project #1985).

\textsuperscript{51}See “Life Cycle Assessment of Supermarket Carrier Bags: A Review of the Bags Available in 2006,” a report issued by the Environment Agency in 2011 (Report SC030148).
plastic bags. “It is important that shoppers keep their reusable bags at home,” he tweeted, “given the potential risk to baggers, grocers and customers.” To that end, he signed an order banning reusable bags. Several other policymakers, including the governor of California, signed similar measures.

Obviously, health risks can be mitigated by regularly washing reusable bags in hot water. But one survey found that just 15% of people who use reusable bags “follow recommended cleaning procedures.”\(^{52}\) And, just as obviously, routinely washing and disinfecting reusable bags only increases their environmental impact.\(^{53}\)

There are other unintended consequences to penalizing plastic bag use. Evidence suggests that reusable bags make shopping trips less efficient. Using scanner data from a large retailer in the United States, a study found that plastic bag taxes and bans increased the amount of time it takes to check out at supermarkets by about two minutes per trip. That inefficiency amounts to a total of nearly 12 million hours of additional wait time nationwide.\(^{54}\) That lost productivity is an internality. But applying the same logic experts use in research on soda, alcohol, tobacco, and marijuana—which conflates internalities and externalities—then reusable bags should be taxed, not plastic bags.

It thus comes as no surprise that, according to one study, policies to tax or ban plastic bags “may result in negative impact on the environment rather than positive.”\(^{55}\) Like so much of analysis of the other sins, experts and paternalists vouching for plastic bag taxes and prohibition have conveniently forgotten to address substitution and unintended consequences.

Nevertheless, plastic bag taxes may be justifiable if the revenue they generate went to effective programs. But little of the money raised goes to environmental cleanup, where harm is said to occur. Sixty percent of bag tax revenue in Denver, Colorado, is retained by the city to administer the tax and provide “education, outreach and to offer customers reusable bags.” The remaining revenue is kept by stores “as a way of offsetting

\(^{52}\) Kimmel et al. (2014).
\(^{53}\) Williams et al. (2011).
\(^{54}\) Taylor (2019b).
\(^{55}\) Kimmel et al. (2014).
any costs they incur” due to the tax. Revenue in Chicago, Illinois, is similarly divided between the city and retailers. The city’s share is used to subsidize the cost of public safety and other city services. How those services will be funded in the future if plastic bag use ceases altogether is not known.

Curiously, the public has yet to embrace plastic bag paternalism. A 2013 Reason Foundation poll found that 60% of American adults opposed a plastic bag ban. Only 15% felt the government should dictate the type of bag consumers can use. Whether paternalists take that to heart—or feel this is another choice where individuals do not know what is in their best interest—remains to be seen.

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Sin taxes may soon escape the confines of grocery stores and other retailers and alight on a new target: robots.

Growth of robots, artificial intelligence, and other emerging technologies has brought to the fore proposals for a so-called robot tax, a new and very different type of sin tax. Whereas the other taxes apply to ostensibly harmful products consumed by individuals, a robot tax theoretically applies to business entities guilty of the sin of automation. Using technology to displace workers from their jobs is thought to impose externalities, including lost wages and increased demand for social services. Paternalists argue that such a transition cannot transpire apart from government intervention, including taxes and other regulations to ensure an orderly process.

Robot-imposed economic calamity is no longer the purview of science fiction writers. Surveys show that the public is concerned about automation-induced job displacement. That may result from a recognition that automation has already occurred and has already eliminated some jobs. Its rise in manufacturing has also contributed to lower wages in that sector. By extension, it may have contributed to rising

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56 Swanson (2019).
57 Ekins (2013).
58 Geiger (2019).
59 Acemoglu and Restrepo (2019a).
60 DeCanio (2016).
income inequality, which is not likely to dissipate for some time.\textsuperscript{61} A robot tax could, in theory, counteract that inequality.\textsuperscript{62} Such a tax could also replace lost revenue to diminished income and payroll tax collections if job displacement accelerates.\textsuperscript{63}

Robot tax advocacy has gained mainstream notice. Microsoft cofounder Bill Gates floated the idea of a robot tax in a 2017 interview.\textsuperscript{64} A 2019 feature in the \textit{New York Times} argued that a robot tax would generate revenue to cover the higher cost of social programs likely to result if a substantial number of jobs were automated.\textsuperscript{65}

But taxing robots is complicated. One immediate difficulty is how the tax would “work.” It could be a government fee added to the price of robots, leaving policymakers the arduous task of defining which technologies are and are not considered a “robot.” A more plausible approach promoted by some experts is a reform of existing tax codes that would remove all tax credits, deductions, and other incentives that encourage businesses to invest in capital equipment that may automate jobs. That would render tax codes human–robot neutral by eliminating tax preferences for automation, thereby leveling the playing field.\textsuperscript{66}

While understandable, fears of boundless automation and attendant social chaos are misplaced. According to an analysis of 21 developed countries, just nine percent of jobs are at risk of elimination due to automation.\textsuperscript{67} Contemporary fears of automation also ignore its economic history. As a 2020 piece in the \textit{Wall Street Journal} noted:

The advent of PCs and computing power in the 1980s and 1990s boosted productivity and destroyed the jobs of typists and file clerks. But software designers and social-media influencers rose to take their place, and U.S. unemployment today is at a 50-year low. If that history repeats, there will

\textsuperscript{61}Berg et al. (2018).
\textsuperscript{62}Zhang (2019).
\textsuperscript{63}Oberson (2017).
\textsuperscript{64}Delaney (2017). As for what to do with robot tax revenue, Gates offered, “you can amp up social services for old people and handicapped people and you can take the education sector and put more labor in there.”
\textsuperscript{65}Porter (2019).
\textsuperscript{66}Abbott and Bogenschneider (2017).
\textsuperscript{67}Anrtz et al. (2016).
be difficult short-term disruptions but little to warrant upending the whole tax system.⁶⁸

Evidence of automation’s benefits to society appears in research that undermines the belief that it imposes externalities. Several studies note that while there may be a difficult transition period as some jobs are eliminated, automation’s long-term economic impact is positive. Benefits include improved productivity and lower prices for consumers.⁶⁹ Studies also show that the net effect on employment and wages is negligible to positive.⁷⁰ There may be fewer jobs in manufacturing, for example, but more in business services.⁷¹ One study found that manufacturing companies that pursued automation had lower labor costs and ultimately created more jobs.⁷²

A robot tax would jeopardize those benefits and impose unintended consequences. Forcing businesses to pay the tax would likely result in less innovation, a less than ideal outcome that would ripple through the economy. A robot tax in one area would almost certainly displace investment from that area—not to mention jobs—to areas where the tax is not charged.⁷³ That, in turn, could lead to lower economic growth.⁷⁴

Policymakers should thus resist proposals to impose a robot tax. In the future, automation will displace some jobs; indeed, it already has. But automation is not a substitute for human labor; it is more often a complement. And as the nature of employment changes, education and training programs should, too.⁷⁵ There’s no need for policymakers and experts—never skilled in the art of central planning—to nudge the process with a

⁶⁸ Rubin (2020).
⁶⁹ Graetz and Michaels (2018).
⁷⁰ Doms et al. (1997) and Feenstra and Hanson (1999).
⁷¹ Dauth et al. (2018); see also Gregory et al. (2018).
⁷² Koch et al. (2019).
⁷³ As Gasteiger and Prettner (2017) note, “From a policy perspective, the successful implementation of a robot tax is only feasible if it is introduced by many countries because of the possibility that capital moves to jurisdictions in which there is no robot tax.”
⁷⁴ Zeira (1998).
⁷⁵ Autor (2015).
Robot tax advocates will continue to argue the need for government revenue to make up for income taxes lost when jobs disappear, but the evidence does not suggest that will happen. Even if it did, that points to the need for a much more comprehensive reform: a new tax system that doesn’t rely on taxing labor. It should also avoid taxing sin—personal, business, or otherwise.

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The next target of paternalist ire is hard to divine, but carbon is the most likely candidate. While a carbon tax is not a selective tax in the spirit of the other sins—it is relatively easy to avoid the other sins taxes, but it’s not easy to avoid consuming carbon—supporters have proposed the levy as needed to redeem carbon’s environmental harm. The externalities largely stem from burning fossil fuels, which pollute the air with carbon dioxide and other greenhouse gasses. A carbon tax is arguably the most consistent with Pigou’s original argument for sin taxes; indeed, his signature example was an industrial factory that pollutes the air.

Carbon taxes and other restrictions have been implemented around the world. Several nations impose some form of a carbon tax, including Argentina, France, Singapore, and Zimbabwe. Some Canadian provinces, including British Columbia and Quebec, have also instituted a tax. Other governments attempt to regulate carbon emissions with other policies, including cap-and-trade systems.

Carbon restrictions enjoy diverse support. Environmental groups, including the Sierra Club, support carbon taxes. So do large oil companies, including British Petroleum, ExxonMobil, and Royal Dutch Shell. In 2019, a group of 45 economists signed a statement published in the Wall Street Journal that said a “carbon tax offers the most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary.” They argued that the tax should replace existing environmental regulations and that any revenue should be distributed to citizens “through equal lump-sum rebates.”

Some experts argue governments should oversee the implementation of automation. Acemoglu and Restrepo (2019b) argue that “we should not assume that, left to its own devices, the right types of AI will be developed and implemented” (emphasis added).

Mazur (2019).

Authors (2019b).
Some research shows that carbon taxes work as intended. A study of Sweden’s carbon tax found that it reduced harmful emissions by nearly 11 percent.\textsuperscript{79} Studies also show that the tax does not have the adverse effects alleged by some critics, like job losses. A report on British Columbia’s carbon tax concluded that it led to a small increase in employment.\textsuperscript{80}

But there is cause for skepticism. Many studies that report positively on carbon taxes draw on models instead of observational evidence.\textsuperscript{81} As much as proponents may claim that all revenue will be returned to the public, that is impossible; some revenue would have to be siphoned to pay for tax administration and oversight. Critics also warn about the potential for rent-seeking, such as through interest groups seeking a share of revenue generated by a carbon tax, as they have so often sought funding provided by other sin taxes.\textsuperscript{82} Depending on how carbon tax revenue is earmarked, the tax’s impact can be regressive.\textsuperscript{83}

The paternalism surrounding carbon and the other twenty-first century sins exemplifies the same pitfalls as the old sins. The social science is dubious or weak, and the harms exaggerated or non-existent. Yet the calls for taxes remain, even in the face of contradictory evidence.

Like the others, the new sin taxes are not necessarily about redeeming externalities, but about advancing progressivism through more government revenue and regulation of individual and corporate decisions. Some have admitted as much. One prominent backer of carbon taxes said in 2019 that raising taxes on the wealthy and allocating the money to “Green New Deal” would actually be more effective than a carbon tax.\textsuperscript{84} The same year, a report signed by over 40 experts advocated solving the interconnected challenges of obesity, undernutrition, and climate change with “taxes on unhealthy foods” like meat. But that was not the experts’ only recommendation. They also advised society to rethink the “structures, practices, and beliefs that underpin capitalism.”\textsuperscript{85}

\textsuperscript{79} Andersson (2019).
\textsuperscript{80} Yamazaki (2017).
\textsuperscript{81} Kirchner et al. (2019).
\textsuperscript{82} Mills (2019).
\textsuperscript{83} Mathur and Morris (2014).
\textsuperscript{84} Sarlin (2019).
\textsuperscript{85} Authors (2019a).
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