
DESIGNING A “MADE IN AMERICA” MEAT TAX

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ABSTRACT

Agriculture is the fourth largest source of greenhouse gas (GHG) emissions in the United States, and agriculture is the largest national source of methane emissions in particular. Yet regulators have paid far less attention to emissions from agriculture than from transportation and electricity, the top two sources of GHG emissions nationally. This Article seeks to put the idea of a meat tax on the agenda of scholars and climate policymakers as a tool for reducing GHG emissions from agriculture. Drawing on scholarship and policy proposals from other jurisdictions, where discussions of taxing meat are further advanced, this Article identifies key issues that would need to be addressed to design a meat tax that could be implemented in the United States. It also recommends an iterative modelling process to devise concrete proposals for an equitable meat tax that would reduce agricultural GHG emissions. A meat tax could be one tool in a basket of policy measures designed to reduce emissions from agriculture. In addition, reducing human consumption of meat would have the ancillary benefits of improving human health and animal welfare, as well as the environment.

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INTRODUCTION

Most Americans eat meat.¹ Yet this habit has a host of harmful repercussions for the planet, animals, and human health. Globally, approximately 14.5 percent of all greenhouse gasses (GHGs) emitted by humans come from livestock, contributing to climate change.² These emissions arise both from indirect sources, such as deforestation from creating pasture for livestock, and from direct sources, such as the methane cattle emit when they belch.³ Beyond climate impacts, raising animals for meat endangers clean water and safe air. Large, industrialized farms create massive quantities of manure, which can run off and pollute waterways and groundwater leading to environmental and human health risks.⁴ Air pollution from growing and raising food causes around sixteen thousand

¹ See *Nearly Nine in Ten Americans Consume Meat as Part of Their Diet*, IPSOS (May 12, 2021), <https://www.ipsos.com/en-us/news-polls/nearly-nine-ten-americans-consume-meat-part-their-diet>.

² See U.N. Food & Agric. Org., *Key Facts and Findings* (2022), <https://web.archive.org/web/20220103013102/https://www.fao.org/news/story/en/item/197623/icode/>.

³ See *id.*; EPA, EPA 430-R-23-002, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2021, at ES-19 (2023).

⁴ See CARRIE HRIBAR, NAT'L ASS'N OF LOC. BDS. OF HEALTH, UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES 3, 5 (Mark Schultz ed. 2010), https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf.

deaths annually in the United States, with “80 percent of those result[ing] from producing animal products.”⁵ Consuming meat has deleterious effects on human health as well. The World Health Organization considers red meat a probable carcinogen,⁶ and the consumption of meat and dairy has been linked to diabetes,⁷ colorectal cancer,⁸ heart disease,⁹ and obesity.¹⁰ Animals on factory farms are also routinely fed antibiotics to promote livestock growth and to prevent illness caused by the poor conditions in which they are kept, and this misuse breeds antibiotic resistant superbugs.¹¹

One possible solution to these problems is clear: people could eat less meat.¹² Studies have found that a “shift to a vegetarian or vegan diet can reduce emissions [from food] by 20–55%, while

⁵ Sarah Gibbens, *Meat Production Leads to Thousands of Air Quality Related Deaths Annually*, NAT’L GEOGRAPHIC (May 10, 2021), <https://www.nationalgeographic.com/environment/article/meat-production-leads-to-thousands-of-air-quality-related-deaths-annually>.

⁶ See WHO, *Cancer: Carcinogenicity of the Consumption of Red Meat and Processed Meat* (Oct. 26, 2015), <https://www.who.int/news-room/questions-and-answers/item/cancer-carcinogenicity-of-the-consumption-of-red-meat-and-processed>.

⁷ See Neal Barnard et al., *Meat Consumption as a Risk Factor for Type 2 Diabetes*, 6 NUTRIENTS 897, 906 (2013).

⁸ See Evelyn Battaglia Richi et al., *Health Risks Associated with Meat Consumption: A Review of Epidemiological Studies*, 85 INT. J. VITAMIN NUTRITION RSCH. 70, 73 (2015).

⁹ See Jennifer Abbasi, *TMAO and Heart Disease: The New Red Meat Risk?*, 321 JAMA 2149, 2149–50 (2019).

¹⁰ See Y. Wang & M. A. Beydoun, *Meat Consumption is Associated with Obesity and Central Obesity Among US Adults*, 33 INT’L J. OBESITY 621 (2009).

¹¹ See WHO, *Stop Using Antibiotics in Healthy Animals to Prevent the Spread of Antibiotic Resistance* (Nov. 17, 2017), <https://www.who.int/news/item/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance>. See also Weiwei Wang et al., *The Occurrence of Antibiotic Resistance Genes in the Microbiota of Yak, Beef and Dairy Cattle Characterized by a Metagenomic Approach*, 74 J. ANTIBIOTICS 508 (June 2021) (explaining that “[u]sing of antibiotic as feed additives to promote growth in livestock . . . is leading to increasing antibiotic resistance.”).

¹² Scholars have previously emphasized the potential for individuals to reduce global warming through their individual actions. See, e.g., Katrina Fischer Kuh, *Capturing Individual Harms*, 35 HARV. ENV’T L. REV. 155, 161 (2011). See also Michael P. Vandenburg, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 6 (2007).

substituting monogastric meat (pork or poultry) for ruminant meat alone can reduce [dietary] GHG emissions by 20–35%.”¹³

No country leaves the production and consumption of food entirely to private market forces, and any discussion of a meat reduction strategy should begin with the recognition of this fact. Today in many jurisdictions there are outright bans that affect the foods humans eat, such as prohibitions on eating dog meat and selling horsemeat for human consumption.¹⁴ Across the world, individual food choices are influenced by taxes on, and subsidies for, food.¹⁵ For

¹³ Anne Lykkeskov & Mickey Gjerris, *The Moral Justification Behind a Climate Tax on Beef in Denmark*, 1 FOOD ETHICS 181, 183 (2017) (citing E. Hallström et al., *Environmental Impact of Dietary Change: A Systematic Review*, 91 J. CLEANER PRODUCTION 1, 2 tbl.1 (2015)). See also Helen Harwatt et al., *Substituting Beans for Beef as a Contribution to US Climate Change Targets*, 143 CLIMATIC CHANGE 261 (2017) (estimating the GHG reductions from substituting beans for beef in the U.S.). Even adopting a “flexitarian” diet (where meat is still eaten, but less frequently) can “increase the magnitude of net negative emissions,” especially when combined with technological innovations aimed at reducing GHG emissions at the farm-level. Maya Almaraz et al., *Model-Based Scenarios for Achieving Net Negative Emissions in the Food System*, PLOS CLIMATE, Sept. 6, 2023, at 1.

¹⁴ See *Dog Consumption Legality 2024*, WORLD POPULATION REV., <https://worldpopulationreview.com/state-rankings/dog-consumption-legality> (last visited Apr. 24, 2024). See also *Nat’l Pork Producers Council v. Ross*, 143 S. Ct. 1142, 1163 (2023) (referring to prohibitions on selling horsemeat for human consumption).

¹⁵ See Tara O’Neill Hayes & Katerina Kerska, *PRIMER: Agriculture Subsidies and Their Influence on the Composition of U.S. Food Supply and Consumption*, AM. ACTION F. (Nov. 23, 2021), <https://www.americanactionforum.org/research/primer-agriculture-subsidies-and-their-influence-on-the-composition-of-u-s-food-supply-and-consumption/#ixzz7hLHVgPoA>; *Agricultural Subsidies*, USDA, <https://www.nal.usda.gov/legacy/topics/agricultural-subsidies> (last visited February 21, 2024); Tatiana Andreyeva et al., *Evaluation of Economic and Health Outcomes Associated With Food Taxes and Subsidies: A Systematic Review and Meta-analysis*, 5 JAMA NETWORK OPEN, June 1, 2022, at 1, 7. See also ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT [OECD], *AGRICULTURAL POLICY MONITORING AND EVALUATION 2023*, at 114–26 (2023), <https://doi.org/10.1787/b14de474-en> (describing overall trends in agricultural support across OECD countries).

The justifications for subsidies include concerns about national security, the importance of eliminating hunger, and a desire to maintain economies that are diverse across sectors and geographies. In most countries, including the United States, the result is far from optimal in economic terms, or even in achieving non-economic objectives. Food subsidies often benefit the well-off rather than the poor. Cross-nationally, more than half of all agricultural subsidies occur in OECD countries. Studies have shown that large health and environmental benefits could be achieved by repurposing and restructuring existing food subsidies. See M.

example, in the United States, under federal law, one dollar is paid on each head of cattle produced or imported to support marketing beef.¹⁶

There are many possible strategies for reducing meat consumption, some of which are already being pursued in the United States. These include educating adults and children about the tastiness and nutritional and environmental benefits of plant-based diets; persuading governments to serve less meat in public sector institutions such as schools, hospitals, and government offices; encouraging private organizations and nonprofits to publicly pledge to reduce the amount of meat that they serve in their operations; withdrawing existing subsidies for meat production; and subsidizing plant-based alternatives to meat.¹⁷

Springmann & F. Freund, *Options for Reforming Agricultural Subsidies From Health, Climate, and Economic Perspectives*, 13 NATURE COMMUN., Jan. 10, 2022, at 1; FARM ANIMAL INV. RISK & RETURN, THE LIVESTOCK LEVY: PROGRESS REPORT (2020), <https://www.fairr.org/article/the-livestock-levy-progress-report/>.

¹⁶ See 7 U.S.C. § 2901(b) (Congressional Findings and Declaration of Policy) (referring to the purpose of the assessment as supporting a “program of promotion and research designed to strengthen the beef industry’s position in the marketplace and to maintain and expand domestic and foreign markets and uses for beef and beef products.”). See also 7 U.S.C. § 2904(8)(A) (providing that the order issued by the Secretary of Agriculture establishing the assessment “shall provide that each person making payment to a producer for cattle purchased from the producer shall, in the manner prescribed by the order, collect an assessment and remit the assessment to the Board.”); *What is the Beef Checkoff?*, THE CATTLEMEN’S BEEF BOARD, <https://www.beefboard.org/checkoff/> (last visited Apr. 21, 2024) (describing the beef checkoff); Jan Shepel, *U.S. Supreme Court Ends Beef Checkoff Challenge*, WIS. STATE FARMER (July 19, 2022), <https://www.wisfarmer.com/story/news/2022/07/19/u-s-supreme-court-ends-beef-checkoff-challenge/10029213002/> (reporting unsuccessful effort to end the beef checkoff program). States also apply assessments on cattle. See *Tennessee Beef Promotion Program*, TENN. DEP’T OF AGRIC., <https://www.tn.gov/agriculture/department/business-development-division/livestock---genetics/livestock-marketing-resources-rd/beef/tennessee-beef-promotion-program.html> (last visited Apr. 21, 2024) (“50-cent assessment on each head of cattle sold in Tennessee”); *Miscellaneous Taxes*, VA. DEP’T OF TAX’N, <https://www.tax.virginia.gov/miscellaneous-taxes#cattle-assessment> (last visited Apr. 21, 2024) (describing a “cattle assessment” that is used for a variety of purposes, including “market development” and “education”).

¹⁷ For policy ideas that local governments can use to reduce meat consumption, see, for example, ADALENE MINELLI ET AL., TOWARDS PLANT-FORWARD DIETS: A TOOLKIT FOR LOCAL POLICYMAKERS (2021), <https://guarinicenter.org/document/towards-plant-forward-diets/>. For an example of local efforts, see Cara Buckley, *How New York’s Public Hospitals Cut Carbon Emissions: More Vegetables*, N.Y. TIMES (Aug. 31, 2023),

Proposals to tax meat are one intervention in a system that badly needs reform. Such proposals have been put forward in a number of European countries including Germany,¹⁸ the Netherlands,¹⁹ the United Kingdom,²⁰ and elsewhere.²¹ The True Animal Protein Price (TAPP) coalition has developed a plan that would apply to twenty-seven countries across the European Union.²² Despite the push for meat taxes in other countries, there is a dearth of comprehensive analysis of how a tax on meat might be implemented in the United States.²³

<https://www.nytimes.com/2023/08/31/climate/new-york-hospitals-vegan-meals.html>. See also Iselin Gambert, *Should the Great Food Transformation be Fake-Meat Free? Considering Strategies for a Future of Food that Is Kinder to People, Animals, and the Planet*, 6 BUS., ENTREPRENEURSHIP & TAX L. REV. 96, 111–12 (2022), <https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=1161&context=betr>.

¹⁸ See Esther King, *Germany Pushes For Tax Hike on Meat and Cheese*, POLITICO (Jan. 5, 2017), <https://www.politico.eu/article/germany-pushes-for-tax-hike-on-meat-and-cheese/>.

¹⁹ See FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 15.

²⁰ See Franziska Funke et al., *Toward Optimal Meat Pricing: Is It Time to Tax Meat Consumption?*, 16 REV. ENV'T ECON. & POL. 219, 221 (2022). To be clear, proposals for a meat tax in the United Kingdom have not been picked up in the political process. See Nasim Asl et al., *What's Behind the 'Net Zero Proposals' the Prime Minister Has Said He'll Scrap?*, FULL FACT (Sept. 21, 2023), <https://fullfact.org/environment/sunak-environment-proposals/>.

²¹ Until recently, it seemed that New Zealand would become the first country to apply a price to GHG emissions, principally methane, from cattle and sheep at the farm-level. However, a shift in the government seems likely to lead to a delay in pricing agricultural emissions in the country until 2030. See Lucy Craymer, *On New Zealand Farm, Scientists Reduce Cow Burps to Save the World*, REUTERS (Oct. 11, 2022), <https://www.reuters.com/business/environment/new-zealand-farm-scientists-reduce-cow-burps-save-world-2022-10-10/>; Ellen Rykers, *How New Zealand is Reducing Methane Emissions from Farming*, BBC (Dec. 15, 2023), <https://bbc.com/future/article/20231214-how-new-zealand-is-reducing-methane-emissions-from-farming>; NATIONAL, REDUCING AGRICULTURAL EMISSIONS 3 (2023), https://assets.nationbuilder.com/nationalparty/pages/17970/attachments/original/1686528015/Reducing_Agricultural_Emissions.pdf?1686528015.

²² See FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 15.

²³ For a journalistic argument that the United States should adopt a carbon tax on beef, see, for example, Richard Conniff, *The Case for a Carbon Tax on Beef*, N.Y. TIMES (Mar. 17, 2018). For scholarship from the U.S. defending the idea of taxing meat, see Nico Stubler & Jeff Sebo, *The Ethics and Politics of Meat Taxes and Bans*, in NEW OMNIVORISM AND STRICT VEGANISM: CRITICAL PERSPECTIVES 233 (Cheryl Abbate & Christopher Bobier eds.) (forthcoming) (on file with authors). There is valuable global modelling of taxing meat to reducing GHG emissions; it does not take account of the legal institutional considerations involved in

The starting point for this Article is recognizing that it is time for U.S. scholars and policy analysts to begin examining potential designs for a meat tax that could be applied in this country as part of broader societal efforts to decarbonize. As of 2021, agriculture is the fourth largest source of GHG emissions in the United States, representing nearly ten percent of national emissions, and the methane released by livestock as a consequence of their digestive process is the largest source of anthropogenic methane emissions.²⁴ But, thus far, agriculture has received relatively little regulatory attention in governmental decarbonization efforts at the national and state levels compared to transportation and electricity, the top two sources of GHG emissions nationally.²⁵ When policymakers turn

establishing a meat tax in any single country such as the United States. See Marco Springmann et al., *Health-Motivated Taxes on Red and Processed Meat: A Modelling Study on Optimal Tax Levels and Associated Health Impacts*, PLOS ONE (2018), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0204139> [hereinafter Springmann et al., *Health-Motivated Taxes*].

²⁴ See EPA, *supra* note 3, at ES-13, ES-19, ES-22. See also *Enteric Fermentation*, CLIMATE & CLEAN AIR COAL. (2014), <https://www.ccacoalition.org/projects/enteric-fermentation> (“Enteric fermentation is a natural part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo. Microbes in the digestive tract, or rumen, decompose and ferment food, producing methane as a by-product.”).

²⁵ See Katrina M. Wyman & Emma Dietz, *Integrating Food Into Local Climate Policy*, 24 N.Y.U. J. LEGIS. & PUB. POL’Y 725, 726 (2022). The federal government is not regulating GHG emissions from agriculture; there are subsidies for reducing GHG emissions from agriculture in the Inflation Reduction Act. See Leah Douglas, *Biden Administration Commits \$300 Million to Measuring Farm Emissions*, REUTERS (July 12, 2023), <https://www.reuters.com/sustainability/land-use-biodiversity/biden-administration-commits-300-million-measuring-farm-emissions-2023-07-12/>. See also Naimat Chopra, *Agricultural Provisions of the Inflation Reduction Act and Beyond*, KLEINMAN CTR. FOR ENERGY POL’Y (May 2, 2023), <https://kleinmanenergy.upenn.edu/news-insights/agricultural-provisions-of-the-inflation-reduction-act-and-beyond/>. California has a target to reduce methane emissions from “dairy and livestock manure management operations to 40 percent below 2013 levels by 2030.” FRANK JIMENEZ, LEGIS. ANALYST’S OFF., *ASSESSING CALIFORNIA’S CLIMATE POLICIES – AGRICULTURE 6* (2021), <https://lao.ca.gov/reports/2021/4483/cal-climate-policies-121521.pdf>. However, the California Air Resources Board is authorized to implement regulations to enforce the target only if certain requirements are met. See CAL. HEALTH & SAFETY CODE § 39730.7. At least until recently, California appears to have relied on incentives to reduce emissions from the dairy and livestock sectors. See Alejandro Lazo, *California Weighs Ending Climate Credits For Cow Poop*, CAL MATTERS (Oct. 19, 2023), <https://calmatters.org/environment/2023/10/climate-change-cows-credits/>. New York State, another state with aggressive climate policies, exempts livestock emissions from mandatory GHG emission reductions. See N.Y.

their attention to requiring meaningful GHG reductions from agriculture, a tax on meat should be one of the tools that policymakers consider, and it is important to begin laying the groundwork for analysis of this option. Experience in other jurisdictions, such as the European Union, suggests that even when governments have economy-wide policies for reducing GHG emissions, agriculture tends to require special policy attention.

A serious proposal to tax meat in the United States may seem politically unthinkable. Dietary habits are conditioned by biology, culturally entrenched, and linked to religion. In addition, since diet appears to many people to be a consummate matter of personal choice, proposals for a meat tax are likely to be criticized as interfering with individual liberty.²⁶ Yet both dietary preferences and political winds can shift unpredictably over time.²⁷ Before the Inflation Reduction Act passed in 2022, even some of the most sophisticated observers of climate policy failed to predict that Congress would

ENV'T CONSERV. L. § 75-0109(2)(b). *See also* N.Y.S. CLIMATE ACTION COUNCIL, FINAL SCOPING PLAN 289 (2022), <https://climate.ny.gov/resources/scoping-plan/>.

The paucity of governmental regulation of agricultural GHG emissions is consistent with the weak environmental regulation of agriculture generally. On longstanding “agricultural exceptionalism” in environmental law, see, for example, Margot J. Pollans, *Drinking Water Protection and Agriculture Exceptionalism*, 77 OHIO STATE L.J. 1195, 1213–14 n.114 (2016) (citing J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L. Q. 263, 298–304 (2000); Jim Chen & Edward S. Adams, *Feudalism Unmodified: Discourses on Farms and Firms*, 45 DRAKE L. REV. 361, 372–76 (1997)). Agriculture is also weakly regulated in environmental terms in Canada and internationally. *See* Angela Fernandez & Krystal-Anne Roussel, *Shifting Appetites: The Impact of Animal Agriculture on Climate Change and Plant-Based Diets as a Solution*, in LAW IN A CHANGING WORLD: THE CLIMATE CRISIS (forthcoming) (manuscript at 1) (on file with authors).

²⁶ In 2019, Republicans said of the Democratic supporters of the Green New Deal, “they want to take away your hamburgers.” Yet the Green New Deal did not include any provisions that would have interfered with the ability of Americans to eat hamburgers. Harry Cheadle, *Conservatives Are Bizarrely Claiming AOC Wants to Take Your Burger Away*, VICE NEWS (Feb. 28, 2019), <https://www.vice.com/en/article/yw8xdg/posts-conservatives-are-bizarrely-claiming-alexandria-ocasio-cortez-wants-to-take-your-burger-away>. *See* Kendra Pierre-Louis, *No One is Taking Your Hamburgers. But Would It Even Be a Good Idea?*, N.Y. TIMES (Mar. 8, 2019), <https://www.nytimes.com/2019/03/08/climate/hamburgers-cows-green-new-deal.html>.

²⁷ *See, e.g.,* Andrew Lisa, *50 Ways Food Has Changed in the Last 50 Years*, STACKER (Sept. 19, 2022), <https://stacker.com/food-drink/50-ways-food-has-changed-last-50-years>.

authorize massive subsidies for transitioning to renewable power.²⁸ For the purposes of beginning a legal and policy discussion of how a U.S. meat tax might sensibly be designed, this Article largely puts aside questions about the political obstacles to actually adopting such a tax.

This Article identifies several of the key issues that would need to be addressed in designing a meat tax in the United States and discusses alternatives for how a meat tax might be structured. To facilitate analysis, we limit our focus in several respects, while recognizing that the scope of a meat tax and the dimensions of analysis could expand as the discussion unfolds. We focus on taxing terrestrial (not including aquatic) animal products, and exclude dairy and eggs. We also focus on a meat tax to reduce GHG emissions, though a variety of human health, environmental, and animal welfare benefits could be taken into account in designing a tax on meat as well.²⁹

²⁸ See Daniel A. Farber, *Turning Point: Green Industrial Policy and the Future of U.S. Climate Action* (June 25, 2023) (unpublished manuscript) (on file with SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4482489.

²⁹ Indeed, such effects should be taken into account from a Pigouvian perspective. Animal agriculture is implicated in biodiversity loss from land use changes, water waste from inefficient agricultural practices, and water pollution from runoff, as well as the health-related costs of eating meat. See U.N. Env’t Programme, *Our Global Food System is the Primary Driver of Biodiversity Loss* (Feb. 3, 2021), <https://www.unep.org/news-and-stories/press-release/our-global-food-system-primary-driver-biodiversity-loss>; OECD, *Water: The Right Price Can Encourage Efficiency and Investment*, <https://www.oecd.org/env/resources/water-the-right-price-can-encourage-efficiency-and-investment.htm> (last visited May 9, 2024); JAVIER MATEO-SAGASTA ET AL., FOOD & AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, *WATER POLLUTION FROM AGRICULTURE: A GLOBAL REVIEW* 3–4 (2017) <https://www.fao.org/3/i7754e/i7754e.pdf>; Springmann et al., *Health-Motivated Taxes*, *supra* note 23. Springmann et al. model a tax on red and processed meat to reduce its impacts on human health. They report that “the health-related costs to society attributable to red and processed meat consumption in 2020 amounted to USD 285 billion” worldwide. *Id.* at 6.

Human consumption of meat has significant impacts on animal welfare. For a proposal for a levy on meat to address harms to animal welfare, see Romain Espinosa & Nicolas Treich, *The Animal Welfare Levy* (Toulouse Sch. Of Econ. Working Paper No. 1503, 2024). For a presentation to tax “[f]arm [a]nimal [s]uffering [t]o [r]educe [i]t,” see Asher Soryl & Aksel Sterri, *Taxing Farm Animal Suffering to Reduce It*, YOUTUBE (Nov. 11, 2023), <https://www.youtube.com/watch?v=u3yYxA7vvtE>. A survey of 2,855 German adults found that people “are more willing to vote for a tax if its purpose is to improve animal welfare as opposed to reducing the climate impact of meat products.” Grischa Perino & Henrike Schwickert, *Animal Welfare Is a Stronger Determinant of Public Support for Meat Taxation Than Climate Change Mitigation in Germany*, 4 NATURE FOOD 160, 163

Part I discusses the rationale for a meat tax animating this Article, framing the tax as a Pigouvian tax intended to address externalities. Part II provides background for designing meat tax proposals for the U.S. context. It briefly summarizes existing European proposals for a meat tax and highlights important differences between the American and European contexts relevant to the imposition of such a tax. It then outlines three principles to guide the design of a meat tax. Part III identifies five choices that would need to be made in designing a meat tax and analyzes options for addressing these design issues in light of the guiding principles outlined in Part II. Part IV sketches a base case proposal for a meat tax that could provide a starting point for formal analysis. It also briefly outlines an iterative modelling process that could be used to generate a small number of comprehensive proposals for taxing meat in the United States. The Article concludes by expressing the hope that scholars and policy analysts take up our call to seriously examine options for designing a meat tax that could be implemented at the federal, state, or local levels in the United States.

I. PIGOUVIAN TAXES

The meat taxes that we are considering are “Pigouvian taxes” because they are aimed at “internalizing” the costs of emitting GHGs in the production and consumption of meat.³⁰ The full cost of producing and consuming meat is not currently borne by producers or consumers but, rather, “externalized” on to others who are not parties to these transactions (e.g., other people, regardless of where

(2023). On quantifying animal welfare and incorporating it into policy, see Mark Buldolfson, Bob Fischer & Noah Scovronick, *Animal Welfare: Methods to Improve Policy and Practice*, 381 *SCI.* 32 (2023). Even limiting the analysis to GHG emissions as we do in this Article should be enough to motivate massive changes in America’s meat-centric diet.

³⁰ See, e.g., Clinton Wallace & Shelley Welton, *Taxing Luxury Emissions* 42 (Univ. of Pa. Inst. for L. & Econ., Rsch. Paper No. 23-27) (forthcoming), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4384259 (“[A] Pigouvian excise tax is designed to internalize the social costs of a product or service into the market price. For example, federal law currently includes Pigouvian taxes on certain oil and petroleum products and other chemicals, with revenues directed to the Superfund to cover hazardous waste cleanup costs.”).

they live, who suffer the consequences of global warming; future generations; animals; nature; etc.).³¹

The primary motivations for Pigouvian taxes are efficiency and equity. Unlike a “sin tax,” a Pigouvian tax carries no necessary implication that the behavior being taxed is wrong or should be punished.³² By correcting markets so that producers and consumers bear all the costs of producing and consuming a good or service, Pigouvian taxes aim to ensure that goods and services will only be produced when their benefits exceed their costs.³³ In this way, Pigouvian taxes can be seen as preventing harm to those who are not parties to a private transaction. The “polluter pays” principle can be seen as an instance of the general outlook that motivates Pigouvian taxes.³⁴

Pigouvian taxes are often advocated with the expectation that they will reduce the production and consumption of the goods or services that are subject to the tax, but that is not the only possible result of such a tax. Consider the case of carbon. If the social costs of the carbon emissions from burning oil and gas were added to their price, the price of oil and gas would be expected to rise, and the level demanded and consumed to fall. But a tax may not necessarily

³¹ That meat production produces externalities was even recognized by Ronald H. Coase in *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960). Coase referred to the problem of cattle straying and destroying crops as a consequence of meat production. *See id.* at 2. The most widely cited law review article, at least as of the late twentieth century, *The Problem of Social Cost* is critical of the Pigouvian idea underpinning this Article of addressing externalities through taxation. *See id.* at 1–2. *See also* Ronald H. Coase, *The Problem of Social Cost: The Citations*, 71 CHI.-KENT L. REV. 809 (1996). Coase’s work has given rise to many ideas for using property rights and markets to address environmental externalities rather than taxes. For a defense of taxation to address externalities over bargaining through property rights and markets, *see* Jonathan S. Masur & Eric A. Posner, *Toward A Pigouvian State*, 164 U. PA. L. REV. 93, 103–04 (2015) (arguing that taxation is more feasible when there are many people who are injured by an externality and they are not well-positioned to bargain).

³² *See* Bruce G. Carruthers, *The Semantics of Sin Tax: Politics, Morality, and Fiscal Imposition*, 84 FORDHAM L. REV. 2565, 2567–68 (2016). A sin tax implies a moral judgment that the taxed behavior is wrong whereas a Pigouvian tax makes no moral judgment about the behavior but only adjudges that the distribution of the costs is problematic. *See* Wallace & Welton, *supra* note 30, at 42–43 (“Rather than being calibrated to social costs, these taxes [i.e., sin taxes] are designed to discourage the use of a disfavored product.”).

³³ *See* Masur & Posner, *supra* note 31.

³⁴ *See* HENRY SHUE, CLIMATE JUSTICE: VULNERABILITY AND PROTECTION 182–86 (2014).

lead to reductions in the amount of the taxed good. Instead, it may prompt changes in the production or consumption process to reduce the externality costs. Such changes may also be a motivation for the tax. Oil and gas producers might respond to a tax on carbon emissions by seeking to capture these emissions, which might enable producers to reduce the amount of tax paid while still maintaining the market for oil and gas. In addition to the potential for technological innovation in production processes, the effect of a tax on the amount of the good that is produced and consumed also may depend on the elasticity of demand for the taxed good or service, the level of the tax, and other factors. In short, exactly how and to what extent internalizing externalities may bear on the production and consumption of a particular good or service is a highly specific question.³⁵ Nevertheless, part of the motivation for levying a Pigouvian tax on meat would be to reduce its production and consumption, and this is the context in which we discuss such proposals.³⁶

Pigouvian taxes currently exist in most countries. For example, “over 180 countries impose a tax on tobacco, at least 40 governments worldwide have adopted some kind of price on carbon, and over 40 countries also currently impose taxes on sugar-sweetened beverages”(SSBs).³⁷ In the United States, the federal government, all states, and the District of Columbia tax tobacco.³⁸ Ten states

³⁵ Masur and Posner advocate for greater use of Pigouvian taxes and suggest that they will reduce production of goods, but Masur and Posner also recognize that they could stimulate innovation in pollution control. *See* Masur & Posner, *supra* note 31, at 101–02. *See also* Springmann et al., *Health-Motivated Taxes*, *supra* note 23 (reporting the results of modelling of health-based taxation of red and processed meat that suggests that “[t]he total reduction in red and processed meat consumption is therefore lower than one would expect based on the associated changes in prices.”); Victor Fleischer, *Curb Your Enthusiasm for Pigouvian Taxes*, 68 VAND. L. REV. 1673, 1706–08 (2015) (arguing that “sin taxes,” for example on alcohol, may not reduce demand due to “low demand elasticities”).

³⁶ *See* Masur & Posner, *supra* note 31, at 101 (discussing a Pigouvian tax as a tool that will reduce production of widgets to the socially optimum amount, taking into account the pollution produced in making widgets).

³⁷ FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 6. *But see* Wallace & Welton, *supra* note 30, at 42–43 (implying that tobacco taxes are sin taxes rather than Pigouvian taxes because tobacco taxes are intended to discourage smoking, not necessarily to internalize the harmful effect of the activity).

³⁸ *See* URB. INST., CIGARETTE AND VAPING TAXES, <https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/cigarette-and-vaping-taxes> (last visited May 9, 2024).

permit local governments to impose an additional tax on tobacco products.³⁹ Several U.S. cities—but no states—impose taxes on SSBs aimed at reducing health problems such as obesity and diabetes.⁴⁰ Empirical evidence indicates that taxes in the United States on tobacco and SSBs have reduced consumption of these products.⁴¹

³⁹ The ten states are “Alabama, Alaska, Colorado, Illinois, Missouri, New York, Ohio, Pennsylvania, Tennessee, and Virginia.” *Id.* “More than 680 local jurisdictions nationwide have their own cigarette tax rates or fees.” Ann Boonn, *Local Government Cigarette Tax Rates & Fees*, CAMPAIGN FOR TOBACCO-FREE KIDS (Dec. 26, 2023), <https://www.tobaccofreekids.org/assets/factsheets/0304.pdf>. “Twenty-one states explicitly prohibit local governments from imposing an excise tax on tobacco products.” Nadav Shoked, *Cities Taxing New Sins: The Judicial Embrace of Local Excise Taxation*, 79 OHIO ST. L.J. 801, 827 n.172 (2018).

⁴⁰ Cities taxing SSBs are “Boulder, Colorado; the District of Columbia; Philadelphia, Pennsylvania; Seattle, Washington; and four California cities: Albany, Berkeley, Oakland, and San Francisco.” URB. INST., STATE AND LOCAL BACKGROUNDERS: SODA TAXES, <https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/soda-taxes> (last visited Apr. 7, 2024). See Yilin Yoshida & Eduardo J. Simoes, *Sugar-Sweetened Beverage, Obesity, and Type 2 Diabetes in Children and Adolescents: Policies, Taxation, and Programs*, CURRENT DIABETES REPS., Apr. 18, 2018, at 1; *Sweetened Beverage Tax*, SEATTLE, <https://www.seattle.gov/city-finance/business-taxes-and-licenses/seattle-taxes/sweetened-beverage-tax> (last visited May 9, 2024). Cook County (Illinois) “adopted” a tax on soda in 2016 but revoked it in 2017 under pressure from the beverage industry. See Shoked, *supra* note 39, at 837–38. Taxes on tobacco and SSBs might be regarded as taxes requiring people “to take account of costs they generate to themselves (‘internalities’),” rather than taxes internalizing costs imposed on others. *Id.* at 810.

⁴¹ See *Cigarette & Tobacco Taxes*, AM. LUNG ASS’N, <https://www.lung.org/policy-advocacy/tobacco/tobacco-taxes#:~:text=The%20current%20federal%20cigarette%20tax,equal%20to%20the%20cigarette%20tax> (last visited Mar. 6, 2024) (“Every 10 percent increase in the price of cigarettes reduces consumption by about four percent among adults and about seven percent among youth.”) (citing John A. Tauras et al., *Effects of Price and Access Laws on Teenage Smoking Initiation: A National Longitudinal Analysis* (Nat’l Bureau of Econ. Rsch., Working Paper No. 8,331, 2001)).

On the impacts of taxes in the United States on SSBs, see Stephan Seiler et al., *The Impact of Soda Taxes: Pass-Through, Tax Avoidance, and Nutritional Effects*, 58 J. MKTG. RSCH. 22, 22 (2021); John Cawley et al., *The Impact of the Philadelphia Beverage Tax on Purchases and Consumption by Adults and Children*, 67 J. HEALTH ECON. 102225 (2019); Joshua Petimar et al., *Sustained Impact of the Philadelphia Beverage Tax on Beverage Prices and Sales Over 2 Years*, 62 AM. J. PREVENTIVE MED. 921, 921 (2022); Xiaoyang He & Joseph V. Balagtas, *Spatial Retail Competition Reduces the Effects of Soda Taxes on Price and Quantity: Evidence from the Philadelphia Beverage Tax*, 112 FOOD POL’Y 102334 (2022); Lisa M. Powell et al., *The Impact of a Sweetened Beverage Tax on Beverage Volume Sold in Cook County, Illinois, and Its Border Area*, 172 ANNALS

II. BACKGROUND CONSIDERATIONS FOR DESIGN

This part sets out background considerations relevant in contemplating the design of a meat tax for the U.S. context. First, it identifies salient differences between the European and U.S. contexts that make it important to consider designing tax proposals specifically for the U.S. context. Second, it sets out the relevance of efficiency, equity, and effectiveness in designing specific meat tax proposals.

A. Existing European Proposals and the U.S. Context

There are several existing proposals to tax meat, mostly coming from advocates and academics based in Europe.⁴² The existing proposals generally address all terrestrial meat products that humans consume, including beef, chicken, and pork. The proposals vary in how they would apply the tax across these categories. In some

INTERNAL MED. 390, 390 (2020); Qi Zhang et al., *Avoidance Behaviors Circumventing the Sugar-Sweetened Beverages Tax*, 105 FOOD POL'Y 102166 (2021); Christina A. Roberto et al., *Association of a Beverage Tax on Sugar-Sweetened and Artificially Sweetened Beverages with Changes in Beverage Prices and Sales at Chain Retailers in a Large Urban Setting*, 18 JAMA 1799, 1799 (2019); Lisa M. Powell & Julien Leider, *Impact of a Sugar-Sweetened Beverage Tax Two-Year Post-Tax Implementation in Seattle, Washington, United States*, 42 J. PUB. HEALTH POL'Y 574, 574 (2021); GLOB. HEALTH ADVOC. INCUBATOR, GLOB. FOOD RSCH. PROGRAM, UNIV. OF N.C. AT CHAPEL HILL, SUGAR-SWEETENED BEVERAGE TAXATION – INDUSTRY ARGUMENTS: COUNTER MESSAGES AND EVIDENCE (Aug. 2, 2021), https://dfweawn6ylvgz.cloudfront.net/uploads/2021/08/Evidence_to_Support_SSB_Taxes.pdf. *But see* Yichen Zhong et al., *Sugar-Sweetened and Diet Beverage Consumption in Philadelphia One Year After the Beverage Tax*, 17 INT'L J. ENV'T RSCH. & PUB. HEALTH 1336, 1336 (2020).

⁴² See, e.g., Stefan Wirsenius et al., *Greenhouse Gas Taxes on Animal Food Products: Rationale, Tax Scheme and Climate Mitigation Effects*, 108 CLIMATIC CHANGE 159 (2010) (proposing “GHG weighted consumption taxes on animal food products in the EU”); Laura Wellesley et al., *Changing Climate, Changing Diets: Pathways to Lower Meat Consumption*, CHATHAM HOUSE (Nov. 24, 2015), <https://www.chathamhouse.org/2015/11/changing-climate-changing-diets-pathways-lower-meat-consumption>; Marco Springmann et al., *Mitigation Potential and Global Health Impacts From Emissions Pricing of Food Commodities*, 7 NATURE CLIMATE CHANGE 69 (2017) [hereinafter Springmann et al., *Mitigation Potential*]; FARM ANIMAL INV. RISK & RETURN, *supra* note 15; TRUE ANIMAL PROTEIN PRICE COALITION, *ALIGNING FOOD PRICING POLICIES WITH THE EUROPEAN GREEN DEAL* (2020), <https://drive.google.com/file/d/1TuFb2z75vacNpLR97Nx-Gb15PnxEvQKH/view> [hereinafter TAPP, *ALIGNING FOOD PRICING*]; Funke et al., *supra* note 20. For a list of relevant sources, see True Animal Protein Price Coalition, *Reports*, <https://tappcoalition.eu/reports> (last visited May 9, 2024).

proposals, the same percentage tax is applied to all meats.⁴³ Other proposals recommend a sliding percentage tax scale, where the tax reflects the environmental impact of the specific product, imposing a higher levy on beef, which is usually more environmentally damaging, and a lower tax on chicken and pork.⁴⁴

For example, the TAPP coalition advocates for a meat tax to internalize the costs of GHG emissions, air and water pollution, and losses of wildlife associated with livestock production.⁴⁵ TAPP recommends that European Union states phase in a tax differentiated by type of meat to reflect the different levels of environmental harm of different meat types.⁴⁶ TAPP estimates that the tax would generate €32 billion per year in revenue (roughly \$34.5 billion) for governments in the European Union.⁴⁷ TAPP proposes that this €32 billion be allocated to farmers, subsidies for “fruits and vegetables,” “low-income households,” and “climate mitigation, afforestation and zero deforestation projects in developing countries.”⁴⁸

In the Netherlands, a “government-commissioned report” recommended a “differentiated tax (beef and pork [would] have higher tariffs compared to chicken),” which would raise roughly €1.7 billion (roughly \$1.8 billion).⁴⁹ This revenue would then be used to

⁴³ For example, a 2019 proposal from Germany’s Social Democrats and Green Party politicians proposed “raising [the] value-added tax (VAT) on meat and dairy from 7% to the standard rate of 19%, with additional revenue spent on improving animal welfare.” FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 13.

⁴⁴ See, e.g., TAPP, ALIGNING FOOD PRICING, *supra* note 42, at 5.

⁴⁵ See *id.* See also Damian Carrington, *EU Urged to Adopt Meat Tax to Tackle Climate Emergency*, GUARDIAN (Feb. 4, 2020), <https://www.theguardian.com/environment/2020/feb/04/eu-meat-tax-climate-emergency>; Flora Southey, *EU Urged to Adopt “Sustainability Charge” on Meat: “Pricing Has Been Kept Artificially Low for Far Too Long”*, FOOD NAVIGATOR EUR. (Jan. 31, 2020), <https://www.foodnavigator.com/Article/2020/01/31/EU-urged-to-adopt-sustainability-charge-on-meat-Pricing-has-been-kept-artificially-low-for-far-too-long>.

⁴⁶ See TAPP, ALIGNING FOOD PRICING, *supra* note 42, at 6 (under TAPP’s proposal, the tax would initially be 1 euro per kilogram meat).

⁴⁷ See FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 14.

⁴⁸ *Id.* See also TAPP, ALIGNING FOOD PRICING, *supra* note 42, at 6 (“The TAPP Coalition advises revenues be used for farmers (31–46%), to lower VAT tariffs and consumer subsidies on vegetables and fruits (22–36%), as compensation for low-income households (19%) and support for developing countries to double nature reserves/forests, to reduce greenhouse gasses, and to help adapt to climate change (12%).”).

⁴⁹ FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 14.

subsidize non-meat products like vegetables and fruits, and some money would be returned to farmers for sustainability investments.⁵⁰

Issues such as what meat products to tax, how to set the tax, and how to address concerns about regressivity would need to be confronted in designing a meat tax in the United States and so there is much to be learned by looking at the proposals emerging in other countries. However, there are differences between the United States and Europe that make it difficult to simply transplant a European proposal to the United States, therefore requiring a distinct U.S. approach to designing a meat tax.

Some of the relevant differences concern the human populations whose food choices taxes would be seeking to influence. While generalizations are hazardous, there is greater income inequality in the United States than in European countries, and inequality in the United States is profoundly intertwined with racial discrimination.⁵¹ Thus, it is especially important in the U.S. context to design proposals for an equitable meat tax that would not exacerbate existing inequalities. It is also important to consider which population groups would bear the costs and benefits from a meat tax, taking into account U.S. population characteristics. For example, it would be valuable to analyze the extent to which low-income, middle-income, and high-income individuals and families would pay higher food prices and realize public health or other benefits from different versions of a tax.⁵²

⁵⁰ See *id.*

⁵¹ See, e.g., Thomas Blanchet et al., *Why Is Europe More Equal than the United States?*, 14 AM. ECON. J.: APPLIED ECON. 480 (2022). See also Aditya Aladangady & Akila Forde, *Wealth Inequality and the Racial Wealth Gap*, FED. RESRV.: FEDS NOTES (Oct. 22, 2021), <https://www.federalreserve.gov/econres/notes/feds-notes/wealth-inequality-and-the-racial-wealth-gap-20211022.html> (explaining that “in the United States, the average Black and Hispanic or Latino households earn about half as much as the average White household and own only about 15 to 20 percent as much net wealth” and that “a long history of discrimination has left Black and Hispanic households with substantially less wealth”).

⁵² On the importance of attending to distributional consequences of regulations, see, for example, Daniel A. Farber, *Inequality and Regulation: Designing Rules to Address Race, Poverty, and Environmental Justice*, 3 AM. J.L. & ECON. 2 (2023).

Other relevant differences concern the agricultural sector. Historically, Europe has tended to have a large number of small farms.⁵³ The number and small size of farms is one reason that some European-based academics have offered for a tax on meat consumption rather than levying a tax on meat producers.⁵⁴ The concentration of agriculture in a relatively small number of farms—a prevalent characteristic of the U.S. agricultural system—is a comparatively recent phenomenon in the European Union.⁵⁵ The fact that farms have often been large in the United States for decades suggests that levying a tax on farms might be more feasible in the American context, since large farms may have greater resources for dealing with the administrative burden of a tax.

Legal institutions also differ between European countries and the United States in ways relevant to designing a meat tax. Of primary importance, European countries generally impose a Value-Added Tax (VAT) on goods and services, including food,⁵⁶ while there is no federal sales tax in the United States. Instead, sales taxes are imposed by states and localities only. Thus, in many European countries, a meat tax could be imposed by raising the VAT country-wide on meat. Alternatively, the VAT could be lowered or eliminated on other foods, such as fruits and vegetables, to encourage substituting them for meat. Indeed, in Germany, there have been proposals to implement a meat tax in effect by adjusting the VAT; for example, in 2019, German Social Democrat and Green politicians proposed increasing the VAT “on meat and dairy” from the

⁵³ See Mary Anne Normile & Jason Price, *The United States and the European Union – Statistical Overview*, in U.S. DEP’T OF AGRIC., WRS-04-04, U.S.-E.U. FOOD AND AGRICULTURE COMPARISONS 1, 3 (2004) (“While the United States contains almost three times the arable land as the European Union, the EU has more than three times as many farms . . . Average farm size is significantly smaller in the EU than the United States, about one-tenth the size of the average U.S. farm.”).

⁵⁴ See Funke et al., *supra* note 20, at 233.

⁵⁵ See Chuck Abbott, *U.S. and E.U., Agricultural Giants With Fewer and Fewer Farmers*, SUCCESSFUL FARMING (Feb. 27, 2023), <https://www.agriculture.com/news/us-and-eu-agricultural-giants-with-fewer-and-fewer-farmers>.

⁵⁶ See Cristina Enache, *2023 VAT Rates in Europe*, TAX FOUND. (Jan. 31, 2023), <https://taxfoundation.org/data/all/eu/value-added-tax-2023-vat-rates-europe/>. See also David Klenert et al., *Would a Meat Tax in Europe Inevitably Burden the Poor?* (Dec. 9, 2022) (unpublished manuscript) (on file with SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4298405 (referring to some differences in current application of VATs among European Union countries).

existing rate of “7% to the standard rate of 19%.”⁵⁷ Since the United States does not have a national sales tax akin to the VAT, a meat tax could not be implemented through a similar mechanism under existing American law.

However, the federal system in the United States creates opportunities for implementing a meat tax that do not exist in European countries that are unitary states, in which power is centralized in the national government. For example, a meat tax could be imposed in the United States at the state level, or perhaps at the municipal level in some localities. This could be done by adjusting existing sales taxes levied in these jurisdictions, or establishing a new tax levied on distributors or other actors in the meat supply chain. Currently, forty-five U.S. states impose a sales tax, including thirteen that apply sales taxes to groceries.⁵⁸ Beyond a state tax, local governments may levy their own sales taxes on food items.⁵⁹ Notably, even where state or local sales taxes apply to food purchases, federal law preempts the taxation of food purchases made using Supplemental Nutrition Assistance Program (SNAP) benefits,

⁵⁷ See FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 13. In the United Kingdom, Adam Briggs has similarly proposed establishing a meat tax by applying the United Kingdom’s VAT to “red and processed meat.” Adam Briggs, *Adam Briggs: Eating Less Red Meat—A Win For Health and A Win for the Planet*, THE BMJ (Aug. 12, 2019), <https://blogs.bmj.com/bmj/2019/08/12/adam-briggs-eating-less-red-meat-a-win-for-health-and-a-win-for-the-planet/>.

⁵⁸ See Eric Figueroa & Julian Legendre, *States That Still Impose Sales Taxes on Groceries Should Consider Reducing or Eliminating Them*, CTR. ON BUDGET & POL’Y PRIORITIES (Apr. 1, 2020), <https://www.cbpp.org/research/state-budget-and-tax/states-that-still-impose-sales-taxes-on-groceries-should-consider>. Except for the five states without a sales tax, most states likely tax restaurant food. “On-premises dining is almost always subject to sales tax, and in some cities, it’s taxed at a higher rate than other sales.” *The Rules on Sales Taxes for Food Takeout and Delivery*, CPA PRAC. ADVISOR (Apr. 15, 2020), <https://www.cpapracticeadvisor.com/2020/04/15/the-rules-on-sales-taxes-for-food-takeout-and-delivery/37763/>.

Ten out of the thirteen states taxing food “offer a lower tax rate for groceries than the general sales tax rate or provide a tax credit to offset some or all of the sales tax on groceries.” Figueroa & Legendre, *supra*. Alabama, Mississippi and South Dakota are the only states which apply the full sales tax to grocery purchases. *See id.*

⁵⁹ Food that is exempt at the state level is generally also exempt at the local level, although there are exceptions. Exceptions include “localities in Arizona, Colorado, Georgia, Louisiana, North Carolina, and South Carolina, where grocery food purchases are fully or partially exempt at the state level but typically taxed at the local level.” Figueroa & Legendre, *supra* note 58.

which low-income people can receive.⁶⁰ The availability of SNAP benefits and the rules governing them may provide a framework in the United States for addressing some of the concerns that a meat tax would disproportionately harm low-income people, although SNAP benefits likely could address regressivity only at the margins.⁶¹

While there is the potential to impose a subnational level tax on meat in the United States, state and local governments would need to adhere to federal and state constitutional and legislative provisions in designing a tax. Consider the dormant commerce clause, a judicially created federal constitutional doctrine that limits state power to establish laws favoring in-state businesses.⁶² It prevents states from levying taxes that discriminate against meat produced in other U.S. states, and state laws that substantially burden interstate commerce relative to the local benefits of the tax.⁶³ Subnational governments also would need to consider federal statutes that preempt subnational regulation, such as the Federal Meat Inspection Act and Poultry Products Inspection Act, which expressly preempt

⁶⁰ “[A] State may not participate in the supplemental nutrition assistance program if the Secretary determines that State or local sales taxes are collected within that State on purchases of food made with benefits issued under this chapter” 7 U.S.C. § 2013(a). On the demographics of SNAP benefit recipients, see Heather Hartline-Grafton & Ellen Vollinger, *New USDA Report Provides Picture of Who Participates in SNAP*, FOOD RSCH. & ACTION CTR., <https://frac.org/blog/new-usda-report-provides-picture-of-who-participates-in-snap> (last visited Feb. 22, 2024).

⁶¹ See Hartline-Grafton & Vollinger, *supra* note 60 (explaining that “about 92 percent of all SNAP benefits go to households with income at or below the federal poverty line.”).

⁶² See, e.g., *National Pork Producers v. Ross*, 143 S. Ct. 1142, 1152–53 (2023) (describing the history of the dormant commerce clause, and indicating that “[i]n its ‘modern’ cases, this Court has said that the Commerce Clause prohibits the enforcement of state laws ‘driven by . . . ‘economic protectionism—that is, regulatory measures designed to benefit in-state economic interests by burdening out-of-state competitors.’”) (citations omitted).

⁶³ See *South Dakota v. Wayfair*, 138 S. Ct. 2080, 2090–91 (2018) (“Modern [dormant commerce clause] precedents rest upon two primary principles that mark the boundaries of a State’s authority to regulate interstate commerce. First, state regulations may not discriminate against interstate commerce; and second, States may not impose undue burdens on interstate commerce. State laws that discriminate against interstate commerce face ‘a virtually *per se* rule of invalidity.’ State laws that ‘regulat[e] even-handedly to effectuate a legitimate local public interest . . . will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits.’”) (citations omitted).

states from imposing regulations on the “premises, facilities and operations” of slaughterhouses and processing facilities in addition to federal requirements.⁶⁴ State law also would be relevant in designing state and local meat taxes, as discussed in Part III below.

Differences between the United States and Europe bear on questions regarding what level of government should impose a meat tax (the national or a subnational level), since there are meaningful options for state or local taxation in the United States; who to tax (producers, distributors, or consumers); and how to address concerns that a tax would disproportionately harm low-income people. Part III discusses these issues informed by the American context and legal institutions, in the light of principles identified in Part II.B.

B. Principles for Designing a Meat Tax

In assessing meat tax proposals, our discussion relies on three principles: efficiency, equity, and effectiveness. These principles are open to different interpretations. Despite their open-endedness, these principles provide a rough and ready guide to assessing various proposals.

For present purposes, a tax promotes efficiency if the benefits of the tax exceed the costs of the tax.⁶⁵ Some taxes and design choices are more efficient than others, meaning that they would produce greater net benefits (benefits minus costs). Our discussion of the efficiency of various proposals is qualitative and rough since the purpose of this Article is to identify questions that would have to be answered in designing a meat tax and to sketch a base case proposal, rather than to provide formal analysis. In considering the efficiency of a meat tax proposal, the benefits include the avoided GHG emissions (the greater the avoided emissions, the greater the benefits). Improved human health and animal welfare from reducing meat consumption, as well as reduced air and water pollution, are other potential benefits. The costs of a meat tax proposal include the costs

⁶⁴ See *infra* notes 111–12 and accompanying text.

⁶⁵ Thus, this Article is implicitly equating efficiency with Kaldor-Hicks superiority, according to which “a reallocation of resources is superior if the gainers from the reallocation could compensate the losers so that nobody is made worse off.” RICHARD L. REVESZ ET AL., ENVIRONMENTAL LAW AND POLICY 23 (4th ed. 2019).

to society of administering the tax, such as the costs of establishing the systems to collect the tax.

Equity is another standard objective in public policy. Tax policy is often concerned with horizontal equity (i.e., people who earn the same amount should pay the same amount in taxes) and vertical equity (i.e., people who earn more should pay more).⁶⁶ Other conceptions of equity rely on specific theories of justice and take into account the broad distribution of wealth or well-being in a society. For example, inspired by a Rawlsian notion of “justice as fairness,” some might hold that changes in tax policy should only be accepted if those changes are in the interest of the worst-off.⁶⁷ While we will not take a stand on specific theories of justice or concepts of equity, we will generally evaluate options for a meat tax through the lens of their impacts on low-income people in the United States. From a global perspective, as the world seeks to decarbonize, there is a strong equity-based argument for reducing per capita meat consumption in the United States, since the United States has among the highest per capita rates of meat consumption in the world.⁶⁸

Effectiveness, like equity, can mean different things, depending on the exact goal of levying a tax. If the goal of implementing a meat tax is to incorporate into the price of meat the social costs of production and consumption, then assessing a meat tax as effective would turn on how closely the price of meat reflects these costs, whatever impact the tax may have on consumption. If, on the other hand, the goal is to reduce meat consumption, then the effectiveness of a tax will turn on its impact on consumption regardless of the extent to which the tax internalizes the externalities involved in producing and consuming meat. These different dimensions of effectiveness are often not clearly distinguished (e.g., in discussions of

⁶⁶ See LIAM MURPHY & THOMAS NAGEL, *THE MYTH OF OWNERSHIP: TAXES AND JUSTICE* (2004).

⁶⁷ See JOHN RAWLS, *A THEORY OF JUSTICE* 266 (2d ed. 1999). What implementing such a view would mean in practice, however, is extremely complex. See David Elkins, *Consumption Taxation in Rawls’s Theory of Justice*, 29 *CORNELL J.L. & PUB. POL’Y* 799 (2020).

⁶⁸ See *Meat Consumption*, OECD, <https://data.oecd.org/agroutput/meat-consumption.htm> (last visited May 9, 2024); *Per Capita Meat Consumption by Type, 2020*, OUR WORLD IN DATA, <https://ourworldindata.org/grapher/per-capita-meat-type> (last visited Feb. 22, 2024).

pricing carbon). We will bear both in mind in our evaluation of meat tax proposals.⁶⁹

III. KEY DESIGN CHOICES

In designing an efficient, equitable, and effective meat tax for the United States, many questions must be answered, including: A) What products should be taxed? B) Where in the supply chain should the tax fall? C) Who should levy the tax? D) How should the amount of the tax be determined? and E) How might concerns that a tax would be regressive be addressed? There are a range of possible answers to these questions and any entity designing a meat tax would need to consider context-specific information in answering them. Notably, the answers to several of these questions are likely intertwined. For example, the choice of who should levy the tax might affect the choice of where in the supply chain the tax should fall (e.g., a state or local jurisdiction may be in a better position to tax consumers than producers). Below, we provide some preliminary analysis of the issues raised by these questions.

A. *What Products Should Be Taxed?*

On conservative estimates, beef is more than twenty-five times as GHG intensive as plant-based foods such as beans and tofu; lamb is more than ten times as intensive; pork is four times as intensive; and poultry is more than three times as intensive.⁷⁰ If the purpose of a meat tax is to internalize the uncounted costs of the GHG emissions from producing and consuming meat, then a universal tax on all meat products in proportion to their GHG emissions would appear to be the most plausible policy. This approach would take plant-based protein substitutes, such as beans and tofu, as the untaxed baseline, and tax all meats that exceed the baseline in their contributions to GHG emissions. This is the approach of the TAPP coalition and the proposals coming out of the Netherlands, which

⁶⁹ See *supra* notes 35–36 and accompanying text for further discussion of the distinction between using Pigouvian taxes to internalize externalities and reduce production and consumption of a good.

⁷⁰ See Hannah Ritchie, *The Carbon Footprint of Foods: Are Differences Explained by the Impacts of Methane?*, OUR WORLD IN DATA (Mar. 10, 2020), <https://ourworldindata.org/carbon-footprint-food-methane>. These numbers can be calculated in different ways but the ordinal rankings and the comparative GHG emissions of these food sources is quite stable.

would tax all meats, including chicken, pork, and beef. Such a tax would internalize externalities involved in the production and consumption of more commodities than other options, such as taxing beef alone.

However, notwithstanding the benefits of taxing all meats, there may be reasons for taxing only those meats with especially high GHG emissions (e.g., beef) and excluding others. Since beef accounts for a large share of U.S. dietary GHG emissions—nearly forty-five percent in 2018⁷¹—it might be efficient to tax only beef, given that a tax on a single meat might be easier to establish and collect than a tax on all meats.⁷² Equity might provide another reason for taxing only beef, even if this might not reduce GHG emissions as much as taxing all meats. Taxing only beef would mean that low-income people would still have access to untaxed meat.⁷³ On the other hand, taxing only beef might lead people to increase their purchases of untaxed meats, and emissions from these meats would rise, and blunt the impact of taxing beef. Between 1999–2000 and 2015–2016, beef consumption declined and poultry consumption increased in the United States, as beef prices increased more than poultry prices.⁷⁴ Moving meat consumption away from beef towards

⁷¹ See Clare Bassi et al., *Declining Greenhouse Gas Emissions in the US Diet (2003–2018): Drivers and Demographic Trends*, 351 J. CLEANER PROD. 7 (2022).

⁷² In a 2016 proposal, the Danish Council on Ethics argued that ideally a tax would be placed on every food item equivalent to its climate impact. But it concluded that a good first step would be a tax on food with the greatest climate impact: ruminant meat. See Lykkeskov & Gjerris, *supra* note 13, at 181–82.

⁷³ In a helpful analysis of judicial attitudes towards local excise taxes, Professor Nadav Shoked addresses the potential application of state constitutional uniformity clauses to local excise taxes. These clauses “invalidate[] classifications that treat similar taxpayers, or taxed properties, differently.” Shoked, *supra* note 39, at 823. In theory, a tax on beef but not poultry might be seen as treating similar food products differently, and thus vulnerable to legal challenge under uniformity clauses. However, reassuringly from a legal point of view, Professor Shoked indicates that “[m]ost courts have simply held that constitutional uniformity clauses flat out do not apply to local excise taxes” and that, in the states where local excise taxes are subject to these clauses, the taxes “have fared surprisingly well.” *Id.* at 823–24. Based on Professor Shoked’s findings, taxing some meats would not seem to raise significant legal issues under state constitutional uniformity clauses.

⁷⁴ See Luxian Zeng et al., *Trends in Processed Meat, Unprocessed Red Meat, Poultry, and Fish Consumption in the United States, 1999–2016*, 119 J. ACADEMY NUTRITION & DIETETICS 1085, 1090, 1094 (2019).

chicken might result in raising and killing even more animals for food than is currently the case.⁷⁵

B. *Where Should the Tax Fall in the Supply Chain?*

There are multiple actors in the meat supply chain, any one of whom might be obligated to pay a meat tax, ranging from farms and other producers to slaughterhouses, distributors, grocery stores and other retailers, restaurants, and individual consumers at the point of sale. It is important to keep in mind that the actors that are legally responsible for paying the tax may not ultimately bear the financial burden of the tax. For example, some entities at the beginning of the supply chain might pass along the cost of the tax to other parties.

For illustrative purposes, this section identifies some of the advantages and disadvantages of applying a tax on producers (such as farms), distributors, and consumers. There are precedents for applying Pigouvian taxes on all three actors in other economic sectors. For example, Norway, one of the first countries in the European Union to implement a carbon tax, makes oil producers pay a tax at the wellhead of “\$94 per tonne of CO₂ emitted from production on the Norwegian continental shelf.”⁷⁶ There seems to be a general consensus that carbon taxes on fossil fuels should be levied on

⁷⁵ Espinosa & Treich warn of the impacts on chickens and pigs of a tax on beef to internalize its GHG emissions. See Espinosa & Treich, *supra* note 29. In a report focused on the United Kingdom, Springlea recommends that animal advocacy organizations not campaign for a meat tax in part because of concerns that such a tax would result in increased human consumption of, and harm to, small animals such as “chicken and fish.” Ren Springlea, *Meat Tax: Why Chickens Pay the Price*, ANIMAL ASK (Feb. 21, 2022), <https://www.animalask.org/post/meat-tax-why-chickens-pay-the-price>. In addition to the animal welfare implications of increasing the consumption of chicken, there are different environmental harms associated with chicken and beef consumption that would result in a redistribution of environmental effects. For further related discussion, see, for example, Iris Chan et al., *The ‘Sustainability Gap’ of US Broiler Chicken Production: Trade-offs Between Welfare, Land Use and Consumption*, 9 R. SOC. OPEN SCI. 210478 (2022) and Owen Gunden, *In Defense of the Meat Tax*, PHAUNA (May 13, 2023), arguing that concerns that a meat tax will increase consumption of chicken and other small animals should not deter consideration of a meat tax.

⁷⁶ See Ole Ketil Helgesen, *Norway Oil Sector Braced For Huge Carbon Tax Hike as New Climate Plan Hatched*, UPSTREAM (Jan. 8, 2021), <https://www.upstreamonline.com/environment/norway-oil-sector-braced-for-huge-carbon-tax-hike-as-new-climate-plan-hatched/2-1-941509>.

producers at the wellhead.⁷⁷ In the context of the United States, the reasons for this include the fact that there is an existing infrastructure for collecting taxes at the wellhead that can be leveraged; producers are relatively small in number (compared with end point consumers); the lifecycle carbon emissions from their extraction can be estimated; and taxing producers may incentivize them to develop low-emission production methods.⁷⁸

In contrast to the inclination to tax producers of fossil fuels, existing taxes in the United States on SSBs are generally applied to distributors and, in a single instance, to consumers. As previously mentioned, several U.S. cities (but no states) currently tax sweetened beverages.⁷⁹ SSB taxes are “levied locally in Boulder, Colorado; the District of Columbia; Philadelphia, Pennsylvania; Seattle, Washington; and four California cities: Albany, Berkeley, Oakland, and San Francisco.”⁸⁰ In all cities except the District of Columbia, these taxes are imposed on distributors, payable when the distributor delivers the goods to the retailer.⁸¹ In Washington, D.C., by contrast,

⁷⁷ See, e.g., Gilbert E. Metcalf, *Designing a Carbon Tax to Reduce U.S. Greenhouse Gas Emissions*, 3 REV. ENV'T ECON. & POL'Y 63, 66 (2009) (“For ease of administration, a carbon tax should be levied upstream on fuel producers rather than downstream on fuel users.”); Ian Parry, *The Right Price*, 52 FIN. & DEV. 10 (2015) (positing that carbon should be taxed either at the point of product or the point of import).

⁷⁸ See Metcalf, *supra* note 77, at 66–67; Lykkeskov & Gjerris, *supra* note 13, at 187–88. The ability to use the existing fuel tax infrastructure to implement a carbon tax might be a reason to tax fuel at the point of production. See Ed Hirs, *What Will an American Carbon Tax Cost You?*, FORBES (July 21, 2020), <https://www.forbes.com/sites/edhirs/2020/07/21/what-will-an-american-carbon-tax-cost-you/?sh=2f9dd6766c76> (“A carbon tax would be administered at the point of production, where all of the other taxes on a fuel resource are collected”).

⁷⁹ See *How Do State and Local Soda Taxes Work?*, TAX POL'Y CTR., <https://www.taxpolicycenter.org/briefing-book/how-do-state-and-local-soda-taxes-work> (last visited Feb. 22, 2024).

⁸⁰ *Id.*

⁸¹ See Martin Austerhuhle, *D.C. Quietly Increases Tax on Sodas and Sugary Drinks*, WAMU (Oct. 1, 2019), <https://wamu.org/story/19/10/01/d-c-quietly-increases-tax-on-sodas-and-sugary-drinks/> (D.C. is the only city that levies the soda tax directly on consumers while San Francisco, Boulder, Berkeley, and Seattle impose traditional excise taxes on distributors); OAKLAND, CAL., CODE OF ORDINANCES, ch. 4.52.050 (1997) (distributors responsible for paying the tax); Seiler et al., *supra* note 41, at 25 (Philadelphia’s soda tax is levied at the distributor level); City of Albany, Cal., Sugar-Sweetened Beverage Tax; City of Albany, Cal. Ordinance 2016-02 (Dec. 5, 2016) (Albany’s SSB tax is levied on distributors).

the tax is applied at the point of sale: while the city's general sales tax is at six percent, the sales tax for sweetened beverages is eight percent.⁸²

The following discussion of the relative merits of taxing producers, distributors, and consumers of meat focuses on three factors: the administrative costs of collecting the tax from different actors,⁸³ the potential for the tax to be avoided and externalities to be displaced to other jurisdictions depending on where the tax is imposed in the supply chain,⁸⁴ and the technological and other options open to different actors to reduce their tax liability by lowering their GHG emissions.

Philadelphia's tax on beverages was unsuccessfully challenged as preempted by the State of Pennsylvania's Sterling Act. The fact that Philadelphia's tax is levied on distributors rather than consumers at retail was central to the majority decision of the Pennsylvania Supreme Court that the tax is not preempted by the Sterling Act. That Act prohibits Philadelphia from taxing "transactions" and "personal property" subject to state taxation; the plaintiffs argued that the State's sales tax on beverages, which is paid by consumers at retail, preempted Philadelphia's tax on beverage distributors. The majority rejected this argument, emphasizing the different "legal incidence" of the Philadelphia (distributors) and State of Pennsylvania (consumers) taxes. *Williams v. City of Philadelphia*, 188 A.3d 421, 434–35 (Pa. 2018).

⁸² See Austermuhle, *supra* note 81. Each of these jurisdictions exempts certain products from the tax including "alcoholic beverages, infant formula, and drinks for medical purposes (not including sports and energy drinks)." URB. INST., STATE AND LOCAL BACKGROUNDEERS: SODA TAXES, <https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/soda-taxes> (last visited May 9, 2024). In addition to these exemptions, SSBs can be purchased using SNAP benefits, and items purchased using SNAP benefits cannot be taxed. Levying the SSB tax on distributors has been held not to violate the federal law prohibition on sales taxes on food purchases made with SNAP benefits. See *Williams v. City of Philadelphia*, 164 A.3d 576, 594 (Pa. Commw. Ct. 2017), *aff'd* on other grounds, 188 A.3d 421 (Pa. 2018). See also Shoked, *supra* note 39, at 825.

The TAPP coalition seems to favor imposing an excise tax on the distributors of meat, rather than applying a meat tax by increasing national VATs. TAPP, ALIGNING FOOD PRICING, *supra* note 42, at 25.

⁸³ In considering where a tax should be levied in the meat supply chain, it would be interesting to analyze the experiences under the national "beef checkoff program" and state-level assessments on heads of cattle. For sources on the national and state level assessments on cattle, see *supra* note 16.

⁸⁴ The potential of displacement—or leakage—of the taxed externality is an important consideration. Leakage impacts the effectiveness of a tax in reducing the externality (such as GHG emissions) because it means that the harm is displaced rather than reduced. See generally Michael Jakob, *Why Carbon Leakage Matters and What Can Be Done Against It*, 5 ONE EARTH 609 (2021).

Producers: The administrative costs of taxing producers are hard to judge in the abstract since they would depend on the number of producers in the jurisdiction, the size of these producers (larger producers might have an easier time adjusting to a tax), and whether there is an existing tax collection or regulatory infrastructure that could be leveraged.

A downside to taxing producers is that it might reduce the relative cost of imported goods from other jurisdictions that do not have comparable taxes.⁸⁵ This could put the taxing jurisdiction’s producers at a competitive disadvantage and incentivize producers to move to jurisdictions without meat taxes. To level the playing field between domestic and foreign producers, a jurisdiction might impose a tax at the border on imported goods; for example, the European Union is planning to “ensure the carbon price of imports is equivalent to the carbon price of domestic production” through a carbon border adjustment mechanism that will complement its emissions trading system.⁸⁶ While the U.S. federal government likely could impose a tax on meat imported from other countries,⁸⁷ state level taxation of meat imported from other American states and foreign countries might face constitutional challenges. In particular, a state tax imposed specifically on meat from other U.S. states and foreign countries might be challenged under the dormant commerce clause and the Import-Export Clause.⁸⁸

⁸⁵ See OECD, ENVIRONMENTAL TAXATION: A GUIDE FOR POLICY MAKERS 10 (2011), <https://www.oecd.org/env/tools-evaluation/48164926.pdf> (explaining that “high rates of environmental taxation can encourage businesses to relocate to lower-taxed jurisdictions or result in them being subject to ‘unfair’ competition from foreign firms that are not subject to similar policies”). On trends in U.S. exports and imports of beef, see Kenny Burdine, *Balance of Trade Has Shifted as Beef Production Has Decreased*, SOUTHERN AG TODAY (Oct. 17, 2023), <https://southernagtoday.org/2023/10/17/balance-of-trade-has-shifted-as-beef-production-has-decreased/>, indicating that U.S. imports of beef have been increasing.

⁸⁶ *Carbon Border Adjustment Mechanism*, EUROPEAN COMM’N, https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en (last visited Apr. 25, 2024).

⁸⁷ Indeed, there are bills in Congress to impose fees on some imported goods based on their carbon intensity, similar to the European Union carbon border adjustment mechanism. See Ankita Gangotra et al., *4 US Congress Bills Related to Carbon Border Adjustments in 2023*, WORLD RES. INST. (Dec. 13, 2023), <https://www.wri.org/update/4-us-congress-bills-related-carbon-border-adjustments-2023>. On the federal authority to impose taxes, see *infra* note 101.

⁸⁸ We have not thoroughly examined the legal risks of a challenge to a state-level meat tax imposed on imported (as well as domestically produced) meat under

Some researchers argue against levying the tax on farms producing meat on the basis that it would be complex to estimate emissions from animals at the farm level.⁸⁹ Researchers also have suggested that there is little point in economically incentivizing farms to reduce their GHG emissions because farms have few opportunities to do so, as the emissions are inherent in the agricultural process.⁹⁰ However, farms could choose to produce less meat and shift to other agricultural products. Also, farms—especially large industrial operations—might respond to a tax by changing the feed for cattle to reduce methane emissions from cows.⁹¹ Notably, the plan

the dormant commerce clause or the Import-Export Clause. With respect to a potential dormant commerce clause challenge, the challenges to state low carbon fuel standards that apply to fuels imported into the state might support the permissibility of meat taxes that apply equally to meat produced in, and imported into, a state from another U.S. state. *See generally* *Am. Fuel & Petrochemical Mfrs v. O’Keeffe*, 903 F.3d 903 (9th. Cir. 2018) (rejecting a challenge to Oregon’s low carbon fuel standard). *See also* Ari Peskoe, *The Supreme Court Ends a Looming Threat to State Clean Energy Laws*, 55 *TRENDS* 4, 4 (2023) (arguing that the Supreme Court’s decision in *National Pork Producers* reduced the threat of dormant commerce clause challenges to state clean energy laws). State taxation of meat imported from another country might raise issues under the dormant foreign commerce clause and the Import-Export Clause. On the dormant foreign commerce clause, see Michael S. Knoll & Ruth Mason, *The Dormant Foreign Commerce Clause After Wynne*, 39 *VA. TAX REV.* 357, 370–392 (2020), analyzing the application of the dormant foreign commerce clause in tax cases. On the application of the Import-Export Clause to state taxes on goods imported from outside the U.S. and interstate trade, see *Nat’l Pork Producers Council v. Ross*, 143 S. Ct. 1142, 1175 (2023) (Kavanaugh, J., concurring in part). Justice Kavanaugh’s opinion in *National Pork Producers* states that Supreme Court jurisprudence “has limited [the Import-Export] . . . Clause to imports from *foreign countries*.” However, he adds: “As Justice Scalia and Justice Thomas have explained, that limitation may be mistaken as a matter of constitutional text and history: Properly interpreted, the Import-Export Clause may also prevent States ‘from imposing certain especially burdensome taxes and duties on imports from other States—not just on imports from foreign countries.’” *Id.* (quoting *Comptroller of Treasury of Md. v. Wynne*, 575 U.S. 542, 573 (2015) (Scalia, J., dissenting)).

⁸⁹ See Springmann et al., *Mitigation Potential*, *supra* note 42, at 69; Funke et al., *supra* note 20, at 220, 233.

⁹⁰ See Springmann et al., *Mitigation Potential*, *supra* note 42, at 69; Funke et al., *supra* note 20, at 220, 233.

⁹¹ See Maddie Duley *UC Davis Research Shows Seaweed Reduces Cow Methane Emissions by as Much as 82%*, *CAL. AGGIE* (Apr. 13, 2021), <https://theaggie.org/2021/04/13/uc-davis-research-shows-seaweed-reduces-cow-methane-emissions-by-as-much-as-82/>; Oliver Morrison, *JBS Inks Feed Additive Deal to Cut Cow Methane Emissions Globally*, *FOOD NAVIGATOR* (Nov. 8, 2021), <https://www.foodnavigator.com/Article/2021/11/08/JBS-inks-feed-additive-deal-to-cut-cow-methane-emissionsglobally>. See also ROGER S. HEGARTY ET AL.,

developed in New Zealand to apply a levy for methane emissions from cattle and sheep would apply to farms.⁹²

Distributors: Taxing distributors might be administratively desirable if they are relatively few in number (compared with other actors in the supply chain, such as consumers), there is already an existing tax collection or regulatory infrastructure applied to distributors, and the distributors could absorb the administrative burden of a tax.

As noted earlier, taxing meat producers might encourage them to move meat production to jurisdictions where it is not taxed, or lead distributors to import (cheaper) untaxed meat from non-taxing jurisdictions. Taxing meat at the point of distribution or consumption would mean that all meat sold in a jurisdiction would be taxed, eliminating the incentive to move meat production or increase imports from non-taxing jurisdictions.⁹³ However, as discussed in Part III.C, if a state or locality—rather than the federal government—taxed meat at the point of distribution or consumption, consumers might displace emissions by buying meat in nearby cities and states that do not tax meat.

Distributors might have several options open to reduce their liability for a meat tax. They might seek to pass on the tax to the parties to whom they sell. If they are not able to fully do so, distributors might respond by selling more non-taxed products if the benefits of selling these products exceed the costs of absorbing the tax.

Consumers: If a jurisdiction already taxes food purchases at the point of sale, levying a meat tax on consumers might be administratively feasible. As mentioned above, there are proposals to

GLOBAL RSCH. ALL. ON AGRIC. GREENHOUSE GASES, AN EVALUATION OF EVIDENCE FOR EFFICACY AND APPLICABILITY OF METHANE INHIBITING FEED ADDITIVES FOR LIVESTOCK (2021), <https://hdl.handle.net/10568/116489>. According to a 2022 report from the California Air Resources Board, “[t]here are two commercially available products that were developed for enteric methane mitigation, with potential emissions reductions up to 10–20 percent. Additional feed additives are under development that may provide larger enteric methane emissions reductions.” CAL. AIR RES. BD., ANALYSIS OF PROGRESS TOWARD ACHIEVING THE 2030 DAIRY AND LIVESTOCK SECTOR METHANE EMISSIONS TARGET ES-4 (2022) <https://ww2.arb.ca.gov/sites/default/files/2022-03/final-dairy-livestock-SB1383-analysis.pdf>.

⁹² See Craymer, *supra* note 21.

⁹³ See Louise D. Edjabou & Sinne Smed, *The Effect of Using Consumption Taxes on Foods to Promote Climate Friendly Diets – The Case of Denmark*, 39 FOOD POL’Y 84, 85 (2013).

implement a meat tax in Europe by increasing the VAT and American jurisdictions with sales taxes on food might similarly adjust them to tax meat, although the effects could be regressive. It would presumably be more administratively complex to levy a meat tax on consumers at the point of sale in jurisdictions that do not currently impose a sales tax on food.

As mentioned above, leakage may occur if consumers are taxed. Consumers might respond to a tax imposed at the retail level by crossing borders to buy goods in jurisdictions where the goods are not taxed.

Taxing consumers might increase consumer awareness of the contribution of meat to climate change if the tax and its purpose were explained on the packaging of the meat or through other media.⁹⁴ This may indirectly lead to further reductions in meat consumption and GHG emissions.⁹⁵ However, even if a meat tax is not levied directly on consumers at the point of sale, the tax might be made visible to consumers at the point of purchase, for example by including the tax as a separate line item on grocery receipts.⁹⁶

Taxing at the point of consumption would likely have equity benefits unavailable under existing law if the tax were imposed earlier in the supply chain. As mentioned above, consumers buying meat using SNAP benefits are tax-exempt; thus, if the tax on meat

⁹⁴ There are legal restrictions on labelling meat. Any label would need to be approved by the USDA, through the Food Safety and Inspection Services. *See* U.S. DEP'T OF AGRIC., A GUIDE TO FEDERAL FOOD LABELING REQUIREMENTS FOR MEAT, POULTRY, AND EGG PRODUCTS 4 (2007), https://www.fsis.usda.gov/sites/default/files/media_file/2021-07/Labeling_Requirements_Guide.pdf. Labels also might be challenged under the First Amendment as a violation of commercial free speech rights. *See* *Central Hudson Gas & Elec. Corp. v. Pub. Serv. Comm'n of New York*, 447 U.S. 557, 561 (1980) (finding that commercial speech, such as words on labels, is protected by the First Amendment). For a discussion of the limited effects of food labelling, see MAGDA OSMAN & SARAH JENKINS, UK FOOD STANDARDS AGENCY, CONSUMER RESPONSES TO FOOD LABELLING: A RAPID EVIDENCE REVIEW 6 (2021), https://www.food.gov.uk/sites/default/files/media/document/Consumer%20Responses%20to%20Food%20Labelling_1_0.pdf.

⁹⁵ *See* Jacob Goldin & Tatiana Homonoff, *Smoke Gets in Your Eyes: Cigarette Tax Salience and Regressivity*, 5 AM. ECON. J. ECON. POL'Y 303, 331 (2013) (showing that where a tax is levied may affect the tax's regressivity).

⁹⁶ The administrative complexity of including the tax as a separate line item would need to be examined. Also, it would be useful to consider research on how often people look at their receipts to determine if it would be worthwhile to include a separate line item on receipts.

were applied at check-out, low-income people paying with SNAP benefits would not be taxed. By contrast, if the tax were levied earlier in the supply chain, there would be no direct exemption from higher product prices available to people paying with SNAP benefits.⁹⁷ Still, the tax exemption of meat purchases using SNAP benefits should not be relied upon to address concerns about the potential regressivity of a meat tax, even if the tax is imposed at the point of sale. It might be desirable to exclude some people who do not receive SNAP benefits from bearing the burden of the tax, so the tax exemption for purchases with SNAP might not be the most efficient or fair way of addressing concerns about regressivity.⁹⁸

The question of who to tax in the supply chain is linked to the question of which level of government should impose a tax, which is discussed further in the next section. For example, a tax on producers might be preferable if the federal government is the taxing authority since it does not currently levy consumer sales taxes. It might be more efficient for states or localities to tax distributors or consumers, leveraging existing sales or distributor tax collection infrastructure.

C. Who Should Levy the Tax?

In a perfect Pigouvian world, it would be better to implement a tax on meat at the federal level than at the state or local levels. Unlike state or local taxes, a federal tax would not be susceptible to challenge under the U.S. Constitution as preempted by laws from higher levels of government, or as a violation of the dormant commerce clause.⁹⁹

A federal tax likely would be more efficient than a state or local tax. Due to the geographic scope of federal authority, the tax would

⁹⁷ See Shoked, *supra* note 39, at 825 (“Cities can thus indirectly apply an excise tax to SNAP beneficiaries that federal preemption supposedly shields—as long as the tax does not appear as a separate charge at the register.”); *Williams v. City of Philadelphia*, 164 A.3d 576, 594 (Pa. Commw. Ct. 2017), *aff’d on other grounds*, 188 A.3d 421 (Pa. 2018).

⁹⁸ See Part III.E for further discussion of options for addressing regressivity.

⁹⁹ If the federal (or a subnational) government imposed a tax on imported meats to level the playing field between domestic meats and imported meats, the border adjustment tax might be challenged under international trade law. See generally Cordelia Christiane Bähr, *Greenhouse Gas Taxes on Meat Products: A Legal Perspective*, 4 TRANSNATIONAL ENV’T LAW 153, 162–170 (2015) (analyzing potential challenges to a European Union meat tax under international trade law).

likely fall on a larger share of the market than state and local taxes, thus internalizing the costs of more GHG emissions than state or local taxation.

A federal tax would also reduce the likelihood of leakage of meat related emissions. Given the geographical scope of federal jurisdiction, few consumers would be able to cross borders in order to avoid the tax if it were imposed at the point of sale or on distributors.¹⁰⁰ It would be more difficult for United States-based producers to relocate to another country to escape a tax on meat production than it would be for them to relocate to another state or local jurisdiction. Since the federal government has the power to impose border taxes,¹⁰¹ a federal tax could eliminate the possibility that untaxed meat might enter the country legally. A federal tax levied on producers might also raise the price of exported meat, thus perhaps putting some downward pressure on offshore consumption.¹⁰²

The benefits from imposing a tax at the federal level might be reduced somewhat by the costs that the federal government would incur in implementing a new tax.¹⁰³ These costs might be notable especially if the federal government were to tax meat at the point of sale since it does not currently levy a federal sales tax. However,

¹⁰⁰ Consumers living near the Canadian or Mexican borders might be an exception, as they might respond to a tax by crossing the border to purchase meat.

¹⁰¹ CONG. RSCH. SERV., PRESIDENTIAL AUTHORITY OVER TRADE: IMPOSING TARIFFS AND DUTIES 1 (2016), <https://crsreports.congress.gov/product/pdf/R/R44707> (“Article I of the Constitution gives Congress the ‘Power To lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States,’ and ‘To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.’ Thus, Congress is constitutionally authorized to raise revenue through taxes, tariffs, duties, and the like, and to regulate international commerce.”) (citations omitted).

¹⁰² It is worth considering whether reducing U.S. meat consumption by taxing meat might increase meat consumption in other parts of the world, by lowering prices for meat since there would be less demand for it in this country. Other researchers have implicitly raised the potential that unilateral national action to increase meat prices might lead to increases in meat consumption in other countries. See, e.g., Springmann et al., *Mitigation Potential*, *supra* note 42, at 73 (“At the global level, an important research question remains as to what impacts food-related GHG taxation in one country, or group of countries, could have on other countries and on international food markets.”).

¹⁰³ Presumably the administrative costs of implementing a uniform federal level tax would be lower than the costs if all states and localities were to implement a series of equivalent taxes, but this is an empirical question.

whether the federal government taxed consumers, distributors, producers, or others, the costs and difficulties in administration are unlikely to be insuperable.

The literature on federalism suggests that there is greater potential at the federal level to design and implement a tax that is sensitive to equity.¹⁰⁴ The federal government has much greater fiscal latitude to redistribute to low-income people than local and state governments do. The greater federal latitude to do so is due in part to the fact that it is more difficult for high-income people to migrate to new countries to reduce their taxes than to change cities or states.

Since the world is not a Pigouvian paradise, it is useful to consider the relative merits of state or local level taxation. State level meat taxes seem likely to be more legally secure than local level taxes. In general, states have broad taxation authority as a matter of state law; they may impose taxes on income, sales, property, and more.¹⁰⁵ To be sure, there are special requirements for passing new taxes in some states, such as legislative supermajority requirements.¹⁰⁶ The California State Constitution expressly requires that sales or use taxes on food be created by statute.¹⁰⁷ Apart from state

¹⁰⁴ See, e.g., PAUL E. PETERSON, *CITY LIMITS* 218 (1981); ROBERT P. INMAN & DANIEL L. RUBINFELD, *DEMOCRATIC FEDERALISM: THE ECONOMICS, POLITICS, AND LAW OF FEDERAL GOVERNANCE* 70–71 (2020).

¹⁰⁵ See *Taxing Power*, CORNELL L. SCH. LEGAL INFO. INST., https://www.law.cornell.edu/wex/taxing_power (last visited Apr. 25, 2024).

¹⁰⁶ In 16 states “some or all tax bills require a supermajority vote of each house.” *CTR. ON BUDGET & POL’Y PRIORITIES, POLICY BASICS: STATE SUPERMAJORITY RULES TO RAISE REVENUES* 12 (2018), <https://www.cbpp.org/research/state-budget-and-tax/state-supermajority-rules-to-raise-revenues>. Some states, including Colorado and Missouri, require a majority vote of the people—not the legislature—to pass a new tax in certain circumstances. See MICHAEL LEACHMAN ET AL., *CTR. ON BUDGET & POL’Y PRIORITIES, SIX REASONS WHY SUPERMAJORITY REQUIREMENTS TO RAISE TAXES ARE A BAD IDEA* 12 (2012), <https://www.cbpp.org/research/six-reasons-why-supermajority-requirements-to-raise-taxes-are-a-bad-idea>.

¹⁰⁷ See CAL. CONST., art. XIII, § 34 (“Neither the State of California nor its political subdivisions shall levy or collect a sales or use tax on the sale of, or the storage, use or other consumption in this State of food products for human consumption except as provided by statute.”). See also CAL. REV. & TAX. CODE § 6359(a) (“There are exempted from the taxes imposed by this part the gross receipts from the sale of, and the storage, use, or other consumption in this state of, food products for human consumption.”).

While we have not researched the matter in depth, the requirement in section 34 of the California State Constitution that sales and use taxes on food products be created by “statute” might preclude a local government from enacting a sales

level requirements, state level meat taxes also might be challenged under the federal constitution and other federal laws. The Supreme Court's decision in *National Pork Producers v. Ross* would seem to reduce the likelihood of a successful dormant commerce clause challenge as the decision confirmed the limited reach of the dormant commerce clause.¹⁰⁸ Still, state level taxation might be challenged as preempted by federal statutes, such as the Federal Meat Inspection Act¹⁰⁹ or the Poultry Products Inspection Act.¹¹⁰ Opponents of a state level tax might argue that these statutes block state (or local) taxation of slaughterhouses or processing facilities, although we have not found any case law directly on point.¹¹¹ In any event, these

tax on meat (and potentially a tax on distributors because the wording applies to "use taxes") if a "statute" is interpreted as a state legislative act. The exemption of "gross receipts" from "food products" from sales taxes under the California Revenue and Taxation Code also might preclude local governments from applying a sales tax to meat. Food products include "meat and meat products" under section 6359(b) of the California Revenue and Taxation Code. According to section 6351 of the California Revenue and Taxation Code, "[e]xempted from the taxes imposed by this part," as used in this article, means, in case of the sales tax, exempted from the computation of the amount of tax imposed." The California Court of Appeal, Third District recently referenced section 6359(a) and section 34 as "generally prohibiting taxes on 'the sale of, and the storage, use, or other consumption in this state of, food products for human consumption.'" *Cultiva La Salud v. State of California*, 89 Cal. App. 5th 868, 873 (Cal. Ct. App. 2023).

¹⁰⁸ See *National Pork Producers v. Ross*, 143 S. Ct. 1142, 1147 (2023). For perspective on the case, see Doug Kysar, *National Pork Producers v. Ross: What Just Happened?* BROOKS INST. (2023), <https://thebrooksintstitute.org/us/animal-law-digest/perspectives/Kysar-2023>. *But see* Scott Ballenger, *EATS Act 'A Radical Assault on Federalism Principles'*, THE HILL (Nov. 8, 2023), <https://thehill.com/opinion/congress-blog/4300486-eats-act-a-radical-assault-on-federalism-principles/> (criticizing a bill that would limit state and local authority to regulate "pre-harvest production" of agricultural goods sold in their states if the goods are produced out of state).

¹⁰⁹ 21 U.S.C. § 601 *et seq.*

¹¹⁰ *Id.* § 451 *et seq.*

¹¹¹ The primary concern would be that a subnational tax on meat at the point of production—the slaughterhouse or processing facilities—could be preempted under the Federal Meat Inspection Act (FMIA) or the Poultry Products Inspection Act (PPIA). The express preemption provisions in the FMIA and the PPIA are similar (21 U.S.C. § 678 and 21 U.S.C. § 467e, respectively). The FMIA's preemption provision is, in relevant part:

Requirements within the scope of this chapter with respect to premises, facilities and operations of any establishment at which inspection is provided under subchapter I of this chapter, which are in addition to, or different than those made under this chapter may not be imposed by any State or Territory or the District of Columbia, except that any such

laws would not seem to block state taxes at the point of sale or distribution.¹¹²

There would be even greater opportunities to challenge local taxes. Local taxes could be challenged under the same federal law grounds as state taxes, as well as under state laws. There are many state-imposed legal obstacles to local level taxation.¹¹³ For example,

jurisdiction may impose recordkeeping and other requirements within the scope of section 642 of this title, if consistent therewith, with respect to any such establishment. Marking, labeling, packaging, or ingredient requirements in addition to, or different than, those made under this chapter may not be imposed by any State or Territory or the District of Columbia with respect to articles prepared at any establishment under inspection in accordance with the requirements under subchapter I of this chapter, but any State or Territory or the District of Columbia may, consistent with the requirements under this chapter, exercise concurrent jurisdiction with the Secretary over articles required to be inspected under said chapter I, for the purpose of preventing the distribution for human food purposes of any such articles which are adulterated or misbranded and are outside of such an establishment, or, in the case of imported articles which are not at such an establishment, after their entry into the United States.

Id. § 678. Industry opponents of a tax might argue that a state or local tax imposed on slaughterhouses or processing facilities is preempted as a regulation affecting their “operations” because the tax might reduce the demand for meat processed through these sites. This argument would significantly extend conventional understandings of the reach of the FMIA and PPIA, which are seen as barring state or local regulations of the actual operations at slaughterhouses and processing facilities. *See Nat’l Meat Ass’n v. Harris*, 565 U.S. 452, 463 (2012). Another indication that a state or local tax on meat levied on slaughterhouses and processing facilities might not be preempted by the FMIA and PPIA is that in holding that the California law in *Nat’l Meat Ass’n* was preempted by the FMIA, the Supreme Court stated: “the Government acknowledges that the FMIA’s preemption clause does not usually foreclose ‘state regulation of the commercial sales activities of slaughterhouses.’” *Nat’l Meat Ass’n*, 565 U.S. at 463 (quoting Brief for United States as Amicus Curiae Supporting Respondent at 17, *Nat’l Meat Ass’n*, 565 U.S. 452 (No. 10-224)). A state or local level tax might be further insulated from preemption under the FMIA and PPIA if it were placed on entities in the meat supply chain other than slaughterhouses or processing facilities.

¹¹² The FMIA and PPIA’s preemption provisions are limited to prohibitions on additional or different requirements for establishments with inspection services (primarily slaughterhouses) and as to marking, labeling, packaging, and ingredients. This suggests that taxes imposed at the point of sale, rather than on the slaughterhouses themselves, fall outside the scope of both statutes. *See* 21 U.S.C. § 678; *id.* § 467e. If the statutes were held to preempt sales taxes on meat, this could call into question any state-level sales taxes applied to meat.

¹¹³ *See, e.g.,* Erin Scharff, *Green Fees: The Challenge of Pricing Externalities Under State Law*, 97 NEB. L. REV. 168, 168 (2018); Adalene Minelli, *Impact Fees*

many states require that local governments obtain prior authorization from the state to establish new taxes.¹¹⁴ Even if local governments have the authority to unilaterally establish a new tax, states may preempt new local taxes after localities adopt them.¹¹⁵

Some interest groups have already begun working to preempt local governments from taking action to influence food choices. In response to pressure from the soda industry and the American Legislative Exchange Council (ALEC), some states have legislatively blocked local taxes on SSBs or prohibited local regulation of food. Broadly worded state laws preempting local regulation of food might complicate efforts to introduce meat taxes at the local level. Arizona¹¹⁶ and Michigan¹¹⁷ have legislative provisions that would preempt localities from enacting a tax on SSBs. California legislated a ban until 2031 on local governments taxing “groceries,” which includes soda and meat, although the four cities that already had taxes on SSBs were allowed to keep them.¹¹⁸ Washington State passed a ballot measure prohibiting local taxes on grocery items including SSBs, but Seattle was allowed to maintain its existing soda

in New York City? Legal Authority, Constraints, and Potential Options, 48 COLUM. J. ENV'T L. 366, 397 (2023).

¹¹⁴ See Erin Adele Scharff, *Powerful Cities: Limits on Municipal Taxing Authority and What to do About Them*, 91 N.Y.U. L. REV. 292, 301 (2016).

¹¹⁵ *But see* Shoked, *supra* note 39, at 813, 826 (arguing “that courts have—surprisingly—shown themselves to be unreceptive both to the claim that cities lack the power to initiate an excise tax and to the claim that a city’s excise tax is preempted by other state acts”). Professor Shoked indicates that there is “a legal reality whereby cities are free to enact excise taxes as long as the state does not actively move to strike down the specific excise tax.” *Id.* at 826.

¹¹⁶ See H.B. 2484, 53d Leg. 2d Reg. Sess. (Ariz. 2018).

¹¹⁷ See S.B. 583, 99th Leg. (Mich. 2017).

¹¹⁸ See Anahad O’Conorr & Margot Sanger-Katz, *California of All Places, Has Banned Soda Taxes. How a New Industry Strategy Is Succeeding*, N.Y. TIMES (June 27, 2018), <https://www.nytimes.com/2018/06/27/upshot/california-banning-soda-taxes-a-new-industry-strategy-is-stunning-some-lawmakers.html?smtyp=cur&smid=tw-upshotnyt>; CAL. REV. & TAX. CODE §§ 7284.10, 7284.12, 7284.16 (the Keep Groceries Affordable Act of 2018). In 2023, the California Court of Appeal, Third District affirmed a lower court decision holding that the Keep Groceries Affordable Act of 2018 is unconstitutional as applied to charter cities on the basis that the Act is a violation of the home rule provision for charter cities in the California Constitution. See *Cultiva La Salud v. State*, 89 Cal. App. 5th 868, 873 (Cal. Ct. App. 2023); CAL. CONST. ART. XI, § 5. However, there may still be other legal barriers to charter cities establishing meat taxes in California, in particular state constitutional statutory barriers. See *supra* note 107.

tax.¹¹⁹ Ten states have passed legislation modeled on ALEC’s Food and Nutrition Act, which states that “No political subdivision shall . . . [b]an, prohibit, or otherwise restrict food at food service operations based upon the food’s nutrition information or upon the provision or non-provision of consumer incentive items.”¹²⁰

In addition to being better protected from legal challenge than local taxes, state meat taxes have the potential to be more efficient than local meat taxes for similar reasons that federal taxation would be more efficient than state taxation. State level taxes should generate more GHG emission reductions than local taxes. Since states are geographically larger than localities, state taxes should be less vulnerable to leakage from consumers or producers crossing jurisdictional boundaries in order to avoid the tax.¹²¹

Geographically small localities (or states) surrounded by nearby neighboring jurisdictions that do not apply taxes may need to be especially wary of taxes leaking emissions to other places. In 2012, Denmark abandoned a tax on foods high in saturated fats, and decided not to implement a tax on sugar, citing consumers crossing the border into Germany to avoid the tax on saturated fats.¹²² Still, a small state or locality might be able to implement a meat tax that is effective in reducing emissions even if the tax also displaces some emissions. For example, there is empirical evidence that local government taxes on SSBs in the United States have reduced consumption, even though some of these taxes correlated with increased purchases in neighboring jurisdictions that do not tax these

¹¹⁹ See Julia Belluz, *Coca-Cola and Pepsi’s Deceptive Tactic to Stop Soda Taxes Worked in Washington State*, VOX (Nov. 7, 2018), <https://www.vox.com/policy-and-politics/2018/11/7/18069890/washington-initiative-1634-results-soda-grocery-tax>.

¹²⁰ *Food and Nutrition Act*, AM. LEGIS. EXCH. COUNCIL (July 3, 2012), <https://alec.org/model-policy/food-and-nutrition-act/>. The ten states are “Kansas, Utah, Ohio, Wisconsin, Mississippi, Alabama, Georgia, Florida, Tennessee, and North Carolina.” David A. Dana & Janice Nadler, *Soda Taxes as a Legal and Social Movement*, 13 NW. J. L. & SOC. POL’Y. 84, 96–97 (2018). “[W]hile these ALEC-based state statutes do not expressly address soda taxes, they conceivably could be read to preempt them.” *Id.* at 97, 100.

¹²¹ See discussion *supra* Part III.B.

¹²² See *Denmark to Abolish Tax on High-Fat Foods*, BBC (Nov. 10, 2012), <https://www.bbc.com/news/world-europe-20280863>.

beverages.¹²³ A meat tax in a small state or locality might function similarly.

The administrative costs of implementing meat taxes in some states and localities could be reduced by the ability to incorporate such taxes into already existing frameworks without having to establish new infrastructure to collect the tax. For example, the thirteen states that already tax groceries could increase their sales taxes on meat, and then maintain, reduce, or eliminate all other sales taxes on food.¹²⁴ Reducing or eliminating sales taxes on non-meat foods could have the salutary effect of improving the equity of sales taxation, as sales taxes on food are seen as regressive.¹²⁵

Even states that do not tax groceries are familiar with similar Pigouvian taxes, which could reduce implementation costs. Pigouvian taxes generate significant revenues for states. In 2016, “11 states were able to raise over \$1 billion each from [similar] taxes” on products including tobacco and alcohol.¹²⁶ That year,

¹²³ See Seiler et al., *supra* note 41; Cawley et al., *supra* note 41; Roberto et al., *supra* note 41; Petimar et al., *supra* note 41; He & Balagtas, *supra* note 41; Powell et al., *supra* note 41; Zhang et al., *supra* note 41.

¹²⁴ See Donna Fuscaldo, *13 States That Tax Groceries*, AM. ASS'N OF RETIRED PERSONS (Feb. 2, 2024), <https://www.aarp.org/money/taxes/info-2024/states-that-tax-groceries.html>. A proposal for a meat tax in Germany similarly calls for raising the VAT on meat. See FARM ANIMAL INV. RISK & RETURN, *supra* note 15, at 13.

¹²⁵ See, e.g., Figueroa & Legendre, *supra* note 58 (calling on states that impose sales taxes on foods to eliminate those taxes, particularly since “sales taxes worsen income and racial inequalities”). According to Figueroa & Legendre,

[t]he lowest-income fifth of families (those making less than \$20,800)—who are disproportionately families of color due to historical and contemporary discrimination—pay almost *eight times more* as a share of their incomes in sales taxes than the top 1 percent of families (those making more than \$553,200), on average: 7.1 percent versus 0.9 percent.

Id. See also Elaine S. Povich, *Decried as Unfair, Taxes on Groceries Persist in Some States*, STATELINE (Aug. 16, 2016), <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2016/08/16/decided-as-unfair-taxes-on-groceries-persist-in-some-states> (describing regressivity of taxes on food and state options for addressing it); Richard C. Auxier, *Is Ending the Grocery Tax on States' Tax Cut Shopping List?*, TAX POL'Y CTR (Mar. 3, 2022), <https://www.taxpolicycenter.org/taxvox/ending-grocery-tax-states-tax-cut-shopping-list> (“[E]ight of the 13 states that tax groceries are considering cuts.”).

¹²⁶ Brian Peccarelli, *Sin Taxes in The Spotlight: How State Revenue Shortfalls Will Spur Focus on Behavioral Tax*, FORBES (Feb. 4, 2021), <https://www.forbes.com/sites/brianpeccarelli/2021/02/04/sin-taxes-in-the-spotlight-how-state-revenue-shortfalls-will-spur-focus-on-behavioral-tax/?sh=701da0b97fa1>. See PEW CHARITABLE TRUSTS, ARE SIN TAXES HEALTHY FOR STATE BUDGETS? (2018), <https://www.pewtrusts.org/en/research-and>

Pennsylvania generated \$2.7 billion from similar taxes, and New York was close behind at \$2.65 billion.¹²⁷ In fact, “[s]ince 2000, all but nine states have significantly raised tax rates on cigarettes and other tobacco products,” demonstrating states’ existing reliance on Pigouvian taxes as a form of revenue generation.¹²⁸

D. How Should the Tax Be Calculated?

In designing the tax, it would be necessary to settle on the unit to which the tax would be applied. Would the unit be the meat by weight, caloric output, or some other characteristic? Once the unit is determined, there are several different options for calculating the level of the tax.

A perfect Pigouvian tax would be set at a level which reflects the social harm caused by the item being taxed.¹²⁹ Since meats vary in their GHG intensity, the amount of the tax per unit would vary with the type of meat if internalizing the climate harms of meats were the guiding principle in calculating the level of the tax. Researchers have already estimated and monetized the GHG emissions of animal products and other foods, and estimated the level of the tax that might be levied on them to reflect their GHG emissions.¹³⁰ These analyses estimate the externality costs of meat by multiplying the amount of carbon-dioxide equivalent generated in meat production by the monetized value of the social cost of carbon.¹³¹ Since the emissions intensity of animal agriculture varies depending on the

analysis/reports/2018/07/19/are-sin-taxes-healthy-for-state-budgets (supporting the proposition that states are increasingly turning to sin taxes by explaining that “[t]his trend is demonstrated by the steady flow of casino openings, a majority of states considering implementing sports betting, and continued interest in legalized recreational marijuana.”).

¹²⁷ See Peccarelli, *supra* note 126.

¹²⁸ PEW CHARITABLE TRUSTS, *supra* note 126, at 1.

¹²⁹ See, e.g., Springmann et al., *Health-Motivated Taxes*, *supra* note 23, at 2 (“[T]he economically optimal tax level of a health-motivated Pigouvian tax is determined such that market prices include the marginal health costs of consumption, i.e. the cost of treating the health conditions that are associated with one additional serving of the good in question.”). See also Gilbert E. Metcalf, *On the Economics of a Carbon Tax for the United States*, in BROOKINGS PAPERS ON ECONOMIC ACTIVITY, SPRING 2019, at 405, 422–23 (2019) (identifying various approaches for determining the level of a carbon tax); Metcalf, *supra* note 77, at 64–65 (similar).

¹³⁰ See Springmann et al., *Mitigation Potential*, *supra* note 42, at 70.

¹³¹ See *id.* at 70.

agricultural process, the optimal level of the tax varies by country, and even within countries due to differences in the emissions intensity of agriculture.¹³²

Instead of keying the tax to the extent of each taxable unit's GHG emissions, another option would be to impose a tax formulated as a uniform rate across weight or caloric output.¹³³ Uniform tax rates may be easier to administer than a variable tax. However, not varying the tax based on the meat's GHG intensity would mean that the tax would not incentivize people to change their food consumption habits in the direction of meats that are less GHG intensive.

E. How Should Concerns About Regressivity Be Addressed?

A major concern with a tax on meat is the possibility that it may be regressive: the tax may burden low-income people more than high-income people.¹³⁴ Low-income people spend a much larger share of their income on food than high-income people.¹³⁵ A tax on meat will increase the cost of meat, which might increase the costs of food for low-income people eating meat, thereby increasing the already higher share of income that low-income people spend on food. Alternatively, a tax on meat might lead low-income people on

¹³² See *id.* at 70 (varying the tax level depending on the emissions intensity while using a social cost of carbon of \$52). Funke et al. calculate the tax on meat based on both GHG pollution and nutrient pollution. Funke et al. use a social cost of carbon of US\$100 per ton of CO₂ equivalent, and to represent nutrient pollution, \$5/kg for eutrophication and \$13/kg for acidification. Funke et al., *supra* note 20, at 222–24.

¹³³ Recall the proposals to increase the VAT on meat in Germany to 19% from 7%. The 19% would essentially be a uniform percentage tax on meat.

¹³⁴ See *Regressive Tax*, TAX FOUND., <https://taxfoundation.org/tax-basics/regressive-tax/> (last visited Feb. 23, 2024) (“A regressive tax is one where the average tax burden decreases with income. Low-income taxpayers pay a disproportionate share of the tax burden, while middle- and high-income taxpayers shoulder a relatively small tax burden.”). On concerns about the regressivity of a meat tax in the European context and options for addressing the concerns, see, for example, Klenert et al., *supra* note 56, at 3, 8.

¹³⁵ Laura Lyde, *U.S. Poor Spend High Percentage of Income on Food*, FOOD BUS. NEWS (Nov. 11, 2016), <https://www.foodbusinessnews.net/articles/7188-us-poor-spend-high-percentage-of-income-on-food> (“American households in the poorest 20% of households spent between 28.8% and 42.6% of their annual before-tax income on food, compared with 6.5% to 9.2% spend by households in the highest income quintile.”).

a fixed budget to consume less meat or switch to cheaper types of meat.¹³⁶

The risk that low-income people would be disproportionately burdened by the costs of a tax would be heightened if low-income people in the United States currently buy more meat than higher income people. There is some evidence that lower-income people currently consume more meat than higher-income people,¹³⁷ but there is also evidence pointing in other directions. Some research suggests that high-income people are more likely to have high-GHG emission diets than lower-income people, which suggests that higher-income people are consuming more meat since meat is a major driver of dietary GHG emissions.¹³⁸ Other research indicates that income is not a significant determinant of meat consumption, and that gender and race are more significant variables affecting U.S. meat consumption.¹³⁹ One study found that Black women have the

¹³⁶ For research on elasticity of demand for meat, see Sylvian Charlebois et al., *Meat Consumption and Higher Prices: Discrete Determinants Affecting Meat Reduction or Avoidance Amidst Retail Price Volatility*, 118 BRIT. FOOD J. 2251 (2016); Jayson L. Lusk & Glynn T. Tonsor, *How Meat Demand Elasticities Vary with Price, Income, and Product Category*, 38 APPLIED ECON. PERSPS. AND POL’Y 673 (2016); Lee Schulz, *Consumers Respond to Meat Price Differences*, AG DECISION MAKER: IOWA STATE UNIVERSITY (Apr. 2022), <https://www.extension.iastate.edu/agdm/articles/schulz/SchApr22.html>; Lauren Nardella, *Meat Consumption Holds Steady as Consumers Alter Amount, Type to Combat Inflation*, FOOD NAVIGATOR (Mar. 28, 2023), <https://www.foodnavigator-usa.com/Article/2023/03/24/Meat-consumption-holds-steady-as-consumers-alter-amount-type-to-combat-inflation#>; Funke et al., *supra* note 20, at 231.

¹³⁷ Glynn T. Tonsor & Jayson L. Lusk, *U.S. Perspective: Meat Demand Outdoes Meat Avoidance*, 190 MEAT SCI. 1, 3 (2022) (“64.2% of those with household income above \$100,000 are predicted to declare as regular consumers of animal products versus 74.2% of those with household incomes of \$100,000 or less.”). Tonsor & Lusk disclose previous consulting work for industry trade organizations, and indicate that data used in the article were “collected under projects partially funded by the Cattlemen’s Beef Promotion & Research Board and the Pork Board.” *Id.* at 5. The disclosure states that their prior consulting “work is not related to the current manuscript, and [the entities for which they consulted] . . . have not had any input on this manuscript.” *Id.* at 6.

¹³⁸ See Rebecca Boehm et al., *A Comprehensive Life Cycle Assessment of Greenhouse Gas Emissions from U.S. Household Food Choices*, 79 FOOD POL’Y 67, 72, 74 (2018) (“Average household monthly income was positively associated with household membership to GHGE quintile. . . . Higher household monthly income was also associated with increased odds of being in a higher GHGE quintile.”).

¹³⁹ See Bassi et al., *supra* note 71, at 5–6 (“Socioeconomic status has been emphasized as an important factor in health-related literature and diet trends . . . yet

lowest GHG diet of any demographic group that was observed.¹⁴⁰ There is also evidence suggesting a nuanced relationship between meat consumption and income depending on the type of meat; for example, low-income people might be more likely to eat poultry.¹⁴¹

In considering whether a meat tax would disproportionately burden low-income people, it would be desirable to also estimate the distribution of the human health benefits of a tax, not just who would pay the tax. As mentioned in the introduction, reducing meat consumption would improve human health and a tax might incentivize a reduction in consumption. To assess whose health might be improved by a tax on meat, it would be useful to understand as a baseline how the health harms from meat consumption are currently distributed among different income groups in the United States. In addition, it would be important to try to estimate how raising the

this study found that the difference observed between PIR groups [groups defined by “the ratio of family income to the federal poverty level”] was relatively small compared with other demographic variables. This study suggests that socioeconomic variables may have less influence on the consumption of GHG-intensive foods than other diet-related variables (such as access and availability, affordability, nutritional quality, etc.). That is, while socioeconomic status may increase barriers for fresh fruit and vegetables, the consumption of meat may be less influenced.”). This study emphasized the significance of gender and a lesser extent race and ethnicity in influencing U.S. diets, finding women and Black people had less GHG intensive diets (compared with men in the case of women, and “White, Mexican American, Other Hispanic, and Other Race-Including Multi Racial population subgroups” in the case of the latter). *Id.* at 6.

¹⁴⁰ See Bassi et al., *supra* note 71, at 7 (“Black women had a GHG footprint at the end of the study period (y2018) that was more than 20% below the national average and had a rate of GHG reduction faster than the national average.”).

¹⁴¹ See Zeng et al., *supra* note 74, at 1091 (“Family income was not associated with the consumption of processed meat and unprocessed red meat, although individuals with FIPR [“family income to poverty ratio”] of 1.30 to 1.84 had the highest consumption of fish/shellfish and those with FIPR <1.30 had the highest consumption of poultry.”). *But see* Patricia M. Guenther et al., *Sociodemographic, Knowledge, and Attitudinal Factors Related to Meat Consumption in the United States*, 105 J. AM DIETETIC ASS’N 1266, 1268 (2005) (“Individuals with higher incomes consumed chicken in greater amounts. Individuals with higher than average beef consumption includes those . . . with lesser household incomes. . . . Individuals with higher than average consumption of processed pork products include those . . . with lesser household incomes.”); *id.* at 1271 (“Once the probability of consuming meat at all was accounted for in the first stage of the statistical model, . . . [t]hose with the lowest household incomes consumed more processed pork products; those with higher education consumed less beef and processed products and more chicken.”); Lusk & Tonsor, *supra* note 136, at 673 (observing that high income people choose steak and chicken breast while low income people choose ground beef, chicken wings, and deli ham).

price of meat through a tax might impact health outcomes by income group. While a tax might improve human health by reducing meat consumption, the health impacts of a tax also might be influenced by what people substitute for meat once it is taxed. For example, the health benefits of a meat tax would be enhanced if people ate more “legumes, fruits and vegetables,” but reduced if they ate more “sugar and refined carbohydrates.”¹⁴²

Notably, some research has implied that the regressive impacts from a tax on meat may be offset by the beneficial health consequences of eating less meat.¹⁴³ However, this argument might be regarded as objectionably paternalistic since a meat tax would differentially structure people’s dietary choices on the basis of their economic status. Even if this argument has merit it should be recognized that the present system also structures people’s food choices on the basis of their economic status, often by subsidizing and making available primarily low-nutrient food rather than more nutrient-rich foods or whole foods.

Concerns that a meat tax could disproportionately burden low-income people could be addressed both in the tax’s design and by allocating the proceeds from the tax. For example, the tax might be designed to avoid taxing meat products that are disproportionately consumed by low-income people.¹⁴⁴ There might be an equity argument for excluding poultry from GHG-based taxation of meat, although such an exclusion would have consequences for the effectiveness of a tax in reducing meat consumption and GHG emissions.

The funds that the tax would produce could mitigate regressivity if used to enhance existing programs that address hunger, such as SNAP, school lunch programs, and local food banks.¹⁴⁵ Another option would be to reduce the costs of alternatives to meat for low-

¹⁴² Springmann et al., *Health-Motivated Taxes*, *supra* note 23, at 13.

¹⁴³ See Funke et al., *supra* note 20, at 229 (“[I]nternality taxes on meat could be increased for distributional motives if low-income households exhibit stronger diet-related behavioral failures and are more responsive to price changes relative to the rest of the population”) (citing Hunt Allcott et al., *Regressive Sin Taxes, With An Application to the Optimal Soda Tax*, 134 Q.J. ECON. 1557 (2019)).

¹⁴⁴ See Springmann et al., *Mitigation Potential*, *supra* note 42, at 72.

¹⁴⁵ SuperSNAP, which “provides an additional \$40 per month for the purchase of fruits and vegetables with no added sugar, sodium,” to SNAP recipients has incentivized the purchase of healthier foods. Seth A. Berkowitz et al., *Association of a Fruit and Vegetable Subsidy Program With Food Purchases by Individuals With Low Income in the US*, 4 JAMA NETWORK OPEN, Aug. 11, 2021, at 1, 8.

income people by subsidizing purchases of foods such as vegetables, fruits and legumes.¹⁴⁶ Funds generated by the tax, in whole or part, could also be returned to low-income or all households quarterly or annually on a per capita basis.¹⁴⁷ Modelling using European data suggests that rebating revenue from a meat tax through equal per-capita transfers would likely make a meat tax progressive, and would be more effective in improving the progressivity of a meat tax than using the proceeds to reduce fruit and vegetable prices.¹⁴⁸

¹⁴⁶ See Springmann et al., *Mitigation Potential*, *supra* note 42, at 70.

¹⁴⁷ This proposal is similar to fee-and-dividend policies that have been advocated concerning carbon pricing by leading conservative economists and policy-makers. See JAMES A. BAKER ET AL., CLIMATE LEADERSHIP COUNCIL, THE CONSERVATIVE CASE FOR CARBON DIVIDENDS (2017), <https://policy-futures.net/wp-content/uploads/2018/07/TheConservativeCaseforCarbonDividends.pdf>.

There is considerable analysis of options for addressing the potential regressivity of a carbon tax. See, e.g., Metcalf, *supra* note 129, at 440–41; Metcalf, *supra* note 77, at 71–72. Lump-sum rebates to low-income households are a widely discussed tool for addressing the regressivity of a carbon tax. See, e.g., Chad Stone, *The Design and Implementation of Policies to Protect Low-Income Households under a Carbon Tax*, CTR. ON BUDGET & POL’Y PRIORITIES (Sept. 21, 2015), <https://www.cbpp.org/research/climate-change/the-design-and-implementation-of-policies-to-protect-low-income-households>.

Instead of means-tested rebates, tax revenue could be rebated universally, with every household provided a per capita rebate. The Columbia Center on Global Energy Policy and the Urban-Brookings Tax Policy Center identify the option of recycling carbon tax revenue by sending per capita rebates “to all non-dependent individuals filing a tax return.” JOSEPH ROSENBERG ET AL., COLUM. SIPA CTR. ON GLOB. ENERGY POL’Y, DISTRIBUTIONAL IMPLICATIONS OF A CARBON TAX 17 (2018), https://www.energypolicy.columbia.edu/sites/default/files/pictures/CGEP_Distributional_Implications_CarbonTax.pdf. Canada recently enacted a carbon tax rebate program—the Climate Action Incentive Payments—that pays quarterly benefits to everyone over the age of 19. The payments consist of a base amount that any qualifying individual receives, plus a supplement for residents of rural or small communities. See Government of Canada, *Climate Action Incentive Payment* (modified April 3, 2023), <https://www.canada.ca/en/revenue-agency/services/child-family-benefits/cai-payment.html>. See also Government of Canada, *Carbon Pollution Pricing Systems Across Canada* (modified July 5, 2023), <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work.html>. Uniform rebates have also been proposed to reduce the regressivity of a tax on meat. Funke et al., *supra* note 20, at 232 (citing Sebastian Rausch et al., *Distributional Impacts of Carbon Pricing: A General Equilibrium Approach with Micro-data for Households*, 33 ENERGY ECON. 20 (2011)). In considering rebates of the tax, the ability to provide rebates to undocumented individuals should be assessed.

¹⁴⁸ See Klenert et al., *supra* note 56, at 4, 7.

The approach that the taxing authority uses to address impacts on low-income people likely would vary with its jurisdiction. A local government might not have the unilateral authority to address regressivity by altering SNAP benefits. It might instead distribute vouchers to low-income people using the proceeds of a tax, as Seattle did during the pandemic using money from its tax on soda.¹⁴⁹ Whatever level of government implements a tax, it will be important to ensure that the impacts do not harm low-income people.

In addition to using tax revenue to address regressivity, a tax on meat would provide governments with a new source of revenue that could be directed to the government's general fund and spent as governments prefer. The tax could also be spent on purposes such as regulating the meat industry to reduce risks to animal and human health, education, or reducing other taxes.¹⁵⁰

IV. NEXT STEPS

This Article identifies five of the key issues involved in designing a meat tax and discusses some options for addressing them in the American context, guided by concerns with developing an efficient, equitable, and effective tax proposal. A meat tax could take many forms, with multiple permutations. The next step in designing a meat tax proposal for the U.S. context would be to undertake a more formal analysis of different design options and their implications for efficiency, equity, and effectiveness. While the analysis would be subject to many uncertainties, it could shed light on the directional implications of different designs. For example, such an analysis might show that there are particular meat tax designs that would reconcile equity and effectiveness, generating significant reductions in GHG emissions while being distributionally progressive. If there are tradeoffs to prioritizing equity, efficiency, or

¹⁴⁹ See Cliff Despres, *Fizz Win: Soda Tax Revenue Turns into Emergency Grocery Vouchers amid Coronavirus*, SALUD AMERICA! (Apr. 21, 2020), <https://salud-america.org/soda-tax-revenue-for-emergency-grocery-vouchers-coronavirus-pandemic/>.

¹⁵⁰ On the lack of a U.S. strategy for reducing zoonotic risk, see ANN LINDER ET AL., BROOKS MCCORMICK JR. ANIMAL L. & POL'Y PROGRAM, HARV. L. SCH. & CTR. FOR ENV'T & ANIMAL PROT., N.Y.U., ANIMAL MARKETS AND ZOONOTIC DISEASE IN THE UNITED STATES 7 (2023), <https://animal.law.harvard.edu/wp-content/uploads/Animal-Markets-and-Zoonotic-Disease-in-the-United-States.pdf>.

effectiveness, formal analysis might highlight these tradeoffs so as to enable policymakers to balance competing considerations.

To structure the analysis, it might be desirable to begin with a “base case” proposal for the design of a meat tax. Our analysis suggests that a plausible base case proposal might have the following four elements: it would be 1) a federal tax; 2) applied to all meats; 3) calculated on the basis of the GHG impacts of producing and consuming particular types of meat, incorporating a mainstream estimate of the social cost of carbon; and 4) levied on meat producers (rather than distributors or consumers) and accompanied by a border tax on meat imports that are not taxed at a similar rate in their home countries.

As discussed in Part III.C, a federal tax would likely be more efficient than a state or local tax because it would capture the most meat products.¹⁵¹ It also could be designed to promote equity by ensuring that low-income people are not disproportionately burdened by the tax.¹⁵²

Applying the tax to all meats in proportion to their GHG impacts would be efficient because it would incorporate the GHG impacts of all production and consumption into all meat prices.¹⁵³ Levying the tax on producers would be efficient because it would capture all meat produced in the United States regardless of whether the meat is consumed domestically or exported, thus limiting the potential for domestic producers to avoid the impacts of a tax by exporting meat.¹⁵⁴ The accompanying tax on imported meats would prevent foreign producers from having an unfair advantage over domestic producers and potentially encourage other countries to adopt meat taxes.¹⁵⁵

Initially, the modelling might estimate various impacts of the base case proposal compared with the status quo, under which meat is not taxed. Using efficiency, equity, and effectiveness as guides, the impacts to be estimated might include: the quantity of meat consumption that the tax would reduce; the quantity of GHG emissions that the tax would avoid; the impact that the tax would have on the

¹⁵¹ See Part III.C.

¹⁵² See *id.*

¹⁵³ See Part III.A.

¹⁵⁴ See Part III.B.

¹⁵⁵ See *Carbon Border Adjustment Mechanism*, *supra* note 86 and accompanying text.

costs of food in aggregate and for people at different income levels; the impact of the tax on human health in general and low-income people in particular; the revenue that the tax would generate; and the costs of collecting the tax.

The next step would be to vary individual elements of the base case proposal one at a time, while keeping the others constant, to determine the effect of the individual variation.¹⁵⁶ For example, if modelling of the base case proposal suggested that it would increase food costs for low-income people, then a variation of the base case proposal could be tested with features added to address this concern. A design might be tested with all four elements described above plus rebating all or a share of the tax’s proceeds to low-income people, or using a percentage of the tax proceeds to subsidize the prices of fruits, vegetables, and legumes. The implications of this second design (“base case with measures to address impacts on low-income people”) would then be assessed for the same impacts mentioned above (GHG emissions, avoided meat consumption, impacts on costs and human health, etc.) so that the directional implications of the measures could be understood.

Other elements that might be varied one at a time while holding other features of the base case design constant could include testing the impacts of a tax in a single U.S. state or city (thus varying element one); on only beef (thus varying element two); or calculated as a uniform percentage of the price of meat, rather than the GHG impacts of the meat product (thus varying element three).

Informed by an iterative modelling process suggesting the effects of varying individual design features, the modelling might conclude by testing a small number of comprehensive designs for a meat tax. For example, to illustrate the implications of two divergent proposals, the modelling might test: 1) a state tax on all meats, calculated based on the GHG impacts of the meats, levied on distributors, with measures to address regressivity such as rebates to low-income households; and 2) a local tax, levied on distributors,

¹⁵⁶ The iterative modelling process sketched above is inspired by the process one of us (Katrina) participated in to design a cap-and-trade program to reduce GHG emissions from large buildings in New York City. The modelling effort for that process was designed and led by the Brattle Group. It is documented in DANIELLE SPIEGEL-FELD ET AL., CARBON TRADING FOR NEW YORK CITY’S BUILDING SECTOR (2021), https://policyintegrity.org/files/publications/2021-11-15_Guarini_-_Carbon_Trading_For_New_York_Citys_Building_Sector.pdf.

applied only to beef, based on the GHG impacts of the beef, with more limited measures to address regressivity, such as rebates to low-income households. As before, the impacts of these two comprehensive proposals would be estimated to enable comparison between proposals.

While this Article has not considered the political feasibility of different approaches to key issues in designing a meat tax, political feasibility might influence the choice of designs to model. For example, if element one (a federal tax) were varied, a tax might be modelled for California or Berkeley with the thought that they might be among the jurisdictions more likely to be open to taxing meat at some point in the immediate future, given the priority that they attach to reducing GHG emissions and animal welfare (and, in Berkeley's case, its implementation of a soda tax).¹⁵⁷ However, the provisions in the California State Constitution and Revenue and Taxation law circumscribing the ability—perhaps especially of local governments—to tax sales, “use,” and “consumption” of food (including meat products) would need to be kept in mind.¹⁵⁸

The modelling process sketched above could draw on existing, mainly European, literature seeking to model GHG and health-based taxes on food and meat, and prior efforts to use economic modelling to design economic instruments to reduce GHG

¹⁵⁷ On California and Berkeley's leadership in addressing climate change, see, for example, Mark Baldassare, *California Is A Model for Climate Action When International Efforts Fall Short*, CARNEGIE ENDOWMENT FOR INT'L PEACE (June 20, 2023), <https://carnegieendowment.org/2023/07/20/california-is-model-for-climate-change-action-when-international-efforts-fall-short-pub-90245>; DEE WILLIAMS-RIDLEY, BERKELEY CITY MANAGER, CLIMATE ACTION PLAN AND RESILIENCE UPDATE (Nov. 30, 2022), <https://berkeleyca.gov/sites/default/files/documents/2022-11-29%20Item%2016%20Climate%20Action%20Plan.pdf>. The Animal Legal Defense Fund includes California in its top tier of states in its 2022 ranking of states based on the state's animal protection laws. See *2022 U.S. State Animal Protection Laws Ranking*, ANIMAL L. DEF. FUND, <https://aldf.org/project/us-state-rankings/> (last visited Feb. 23, 2024) (ranking California number 9). In 2021, “Berkeley became the first city in the United States to urge its public employees' retirement system to divest from industrial animal protein and factory farming companies.” Nilang Gor, *Opinion: Berkeley Urges CalPERS to Divest From Industrial Animal Protein Factory Farming Companies*, BERKELEYSIDE (Apr. 30, 2021), <https://www.berkeleyside.org/2021/04/30/opinion-berkeley-urges-calpers-to-divest-from-industrial-animal-protein-factory-farming-companies>. On Berkeley's tax on SSBs, see *supra* note 40.

¹⁵⁸ CAL. CONST. art. XIII, § 34. See *supra* note 107.

emissions in other sectors.¹⁵⁹ The modelling might be funded in part by philanthropic organizations. A precedent for philanthropic support for public policy-based taxes is the support of Bloomberg Philanthropies for taxes on SSBs in the United States and abroad to promote public health.¹⁶⁰

CONCLUSION

The purpose of this Article is to promote discussion and analysis of how taxing meat could be a tool for mitigating GHG emissions in the United States. It is clear from the literature that animal agriculture generally, and meat production and consumption in particular, are neglected elements in GHG reduction efforts.¹⁶¹ A tax on meat could be one element in a package of measures to limit emissions from this sector. Taxing meat is especially attractive since reducing meat production and consumption would bring a host of ancillary benefits relating to human health, environmental quality, and animal welfare.

The next step in advancing the discussion would be to model the effects of a range of possible meat tax designs. The choice of which designs to model should take into account their legal viability and political acceptability. Such modelling could yield options for the design of a tax that could address potential concerns with such a tax, for example, by identifying equitable systems of taxation that would not harm—and perhaps could even benefit—low-income people. Armed with concrete proposals designed with the U.S. context in mind, advocates might then seek to advance the idea of a meat tax in civil society groups and eventually in the political process. While there is little political appetite today for a meat tax (pun intended), politics can quickly change.¹⁶² The U.S. federal system

¹⁵⁹ See, e.g., Springmann et al., *Health-Motivated Taxes*, *supra* note 23. See also *supra* note 42 (referring to various European proposals for a meat tax).

¹⁶⁰ See *Sugar-Sweetened Beverage Advocacy*, BLOOMBERG PHILANTHROPIES, <https://www.bloomberg.org/public-health/promoting-healthy-food-choices/sugar-sweetened-beverage-advocacy/> (last visited May 10, 2024).

¹⁶¹ This is also reflected in media coverage. See CONSTANZA ARÉVALO ET AL., FAUNALYTICS & SENTIENT MEDIA, *ANIMAL AGRICULTURE IS THE MISSING PIECE IN CLIMATE CHANGE MEDIA COVERAGE* (2023), <https://osf.io/q4evn>.

¹⁶² Laws against same sex sodomy were only definitively held to be unconstitutional in 2003; yet little more than a decade later same sex marriage was established as a constitutional right. See *Lawrence et al. v. Texas*, 539 U.S. 558 (2003); *Obergefell v. Hodges*, 576 U.S. 644 (2015). These were judicial rather than

also creates the possibility of adopting policies in one jurisdiction that would be overwhelmingly rejected in another. The federal government has not succeeded in imposing a price on carbon. Yet thirteen states price carbon through cap-and-trade programs.¹⁶³

An equitable tax on meat to reduce GHG emissions would have broad benefits for people, animals, and the planet. While this Article has focused on a relatively narrow tax on terrestrial meat aimed at internalizing the GHG impacts of meat production and consumption, further analysis could encompass other currently non-internalized externalities, such as other environmental, human health and animal welfare harms from meat consumption.¹⁶⁴ We hope that academics, policy analysts, and philanthropies will take up this Article's call to begin rigorously analyzing potential designs of a meat tax that could be implemented in the United States.

legislative decisions, but polling data shows that they reflected—and were followed by—rapid changes in popular attitudes. *See LGBTQ+ Rights*, GALLUP, <https://news.gallup.com/poll/1651/gay-lesbian-rights.aspx> (last visited Apr. 21, 2024).

¹⁶³ *See* Ctr. for Climate & Energy Sols., *Market-Based State Policy*, C2ES, <https://www.c2es.org/content/market-based-state-policy/> (last visited May 10, 2024).

¹⁶⁴ *See, e.g.*, Catharina Latka et al., *Paying the Price for Environmentally Sustainable and Healthy EU Diets*, 28 GLOB. FOOD SEC. 100437 (2021); Espinosa & Treich, *supra* note 29.