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MIRRORED EXTERNALITIES

*Lisa Grow Sun** and *Brigham Daniels***

ABSTRACT

A fundamental but underappreciated truth is that positive and negative externalities are actually mirror reflections of each other. What we call “mirrored externalities” exist because any action with externalities associated with it can be described as a choice to do or to refrain from doing that particular action. For example, if a person smokes and thereby creates a negative externality of more secondhand smoke, then her choice not to smoke creates a positive externality of less secondhand smoke. Conversely, if a person’s choice to get an immunization confers a positive externality of reducing vectors for disease transmission, then a choice not to get an immunization necessarily imposes negative externalities on third parties in the form of more vectors for disease. In each set, the negative externalities are the inverse—the mirror image—of the positive externalities. Thus, we have two possible characterizations or framings of any decision, one of which focuses on negative externalities and the other of which focuses on positive externalities. Which framing tends to predominate may be influenced by a number of factors, including society’s baseline sense of the actor’s legal or moral entitlement to engage in (or refrain from engaging in) particular behavior, the availability of a villain to whom to ascribe negative externalities, and the relative invisibility of certain externalities until disaster strikes, when the negative framing becomes the face of the crisis.

Ultimately, the framing of externalities has profound effects on both the way we think about and process externalities and on our politics and policy development. We see profound potential impacts of framing on human perception of risk and opportunities, particularly due to the implications of the Nobel Prize-winning work of behavioral economists Amos Tversky and Daniel Kahneman. Their work on human perception suggests that due to loss aversion, the availability heuristic, and our bimodal response to catastrophic risk, we will give much greater weight and attention to negative externalities and consistently undervalue positive externalities. While positive externality frames are more effective in inspiring voluntary action, negative frames have serious implications for policy decision-making. The choice to emphasize either the positive or negative externality in the mirrored set shapes the array of policy prescriptions we are likely to

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consider. The same choice may affect whether we think there is a real problem to be solved in the first instance. We find loss aversion at work in policymaking as well: negative externalities, we suggest, are often viewed as a call to action, while positive externalities are viewed merely as an occasion for celebration. Lastly, the negative-externality “call to action” is often a concerted campaign to redefine the legal and social meaning of particular activities.

Given the critical role externalities play in justifying both development of property rights and intervention in markets and individual liberties, understanding mirrored externalities and the consequences of our framing of them is vital.

INTRODUCTION

Externalities are ubiquitous.¹ Moreover, the existence of externalities is one of the most commonly proffered, and most widely accepted, arguments for government intervention in markets and individual liberty.² Externalities likewise feature prominently in accounts of the development of property rights.³ And, despite their importance, our understanding of externalities is often quite incomplete.

1 See, e.g., ANNE STEINEMANN, MICROECONOMICS FOR PUBLIC DECISIONS 191 (2d ed. 2011) (“Because of the proximity of everyday activities, some type of externality arises from virtually every action, public or private.”). Externalities play a central role in many activities and policy areas. See, e.g., *City of Los Angeles v. Alameda Books, Inc.*, 535 U.S. 425, 446 (2002) (concentration of adult bookstores); *Rincon Band of Luiseno Mission v. Schwarzenegger*, 602 F.3d 1019, 1033 (9th Cir. 2010) (gambling); *United States v. Miles*, 228 F. Supp. 2d 1130, 1139 (E.D. Cal. 2002), *rev’d*, 130 F. App’x 108 (9th Cir. 2005) (law enforcement); MARK BLAUG, AN INTRODUCTION TO THE ECONOMICS OF EDUCATION 108 (1970) (education); Lily L. Batchelder et al., *Efficiency and Tax Incentives: The Case for Refundable Tax Credits*, 59 STAN. L. REV. 23, 44 (2006) (taxes); Steven G. Calabresi, “A Government of Limited and Enumerated Powers”: In Defense of *United States v. Lopez*, 94 MICH. L. REV. 752, 781–82 (1995) (federalism); Ben Depoorter, *Horizontal Political Externalities: The Supply and Demand of Disaster Management*, 56 DUKE L.J. 101, 104 (2006) (politics of disaster management); Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 258 (2007) (intellectual property); Jack L. Goldsmith & Alan O. Sykes, *The Internet and the Dormant Commerce Clause*, 110 YALE L.J. 785, 802 (2001) (internet); Leslie Meltzer Henry & Maxwell L. Stearns, *Commerce Games and the Individual Mandate*, 100 GEO. L.J. 1117, 1156 (2012) (civil rights); Shannon Weeks McCormack, *Taking the Good with the Bad: Recognizing the Negative Externalities Created by Charities and Their Implications for the Charitable Deduction*, 52 ARIZ. L. REV. 977, 981 (2010) (charitable giving); Gideon Parchomovsky & Peter Siegelman, *Cities, Property, and Positive Externalities*, 54 WM. & MARY L. REV. 211, 214 (2012) (property); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the “Race-to-the-Bottom” Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1212 (1992) (pollution); George Steven Swan, *The Law and Economics of State-Sanctioned Medical Marijuana: Gonzales v. Raich*, 7 FLA. COASTAL L. REV. 473, 476 (2006) (drug enforcement); Dana R. Wagner, *The Keepers of the Gates: Intellectual Property, Antitrust, and the Regulatory Implications of Systems Technology*, 51 HASTINGS L.J. 1073, 1096–98 (2000) (technological advancements).

2 See, e.g., A.C. PIGOU, THE ECONOMICS OF WELFARE 29–30 (4th ed. 1932); R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960); Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968).

3 See, e.g., GARY D. LIBECAP, CONTRACTING FOR PROPERTY RIGHTS 12 (1989) (“Primary motivations for contracting for property rights are common pool losses. Capturing a share of the expected gains from mitigating common pool conditions encourages individuals to

Externalities seem simple, at least at first glance. We can easily define negative externalities as costs an actor imposes on third parties. We might further note that because an actor imposes these costs on others, the actor is unlikely to take them into account adequately in his decision-making. In contrast, we could describe positive externalities as benefits that an actor's decisions confer on third parties—benefits that, again, the actor is unlikely to account for in his decision-making, as he does not capture those benefits for himself. On closer examination, however, this simple explanation of externalities belies considerable complexity.

Consider the memorable example that Coase introduced more than fifty years ago of the rocky relationship between two neighbors—a rancher and a farmer.⁴ The main point of friction between the two was that the rancher's cows wanted to eat the farmer's crops. Coase explained that we might think about the externalities imposed on the farmer, which took the form of crops destroyed by the straying cattle. Yet, everything was not peaches and cream for the rancher either. He likewise could complain of externalities from the farmer's actions: the farmer's crops attracted the rancher's cows, which made it much more difficult for the rancher to corral and care for the wander-prone cattle.

Given that the farmer's and rancher's benefits and costs were just the converse of each other, how should we consider the externality? Coase's question spurred a sea change in economic and legal scholarship. Among other things, scholars have attempted to help us think through factors we ought to consider when unpacking the question of who to hold responsible for externalities.⁵ We have also learned that in allocating liability for externalities, societal norms and perceptions tend to trump law, politics, and economics.⁶

While Coase's insights into reciprocal bilateral externalities—where one neighbor's cost is the other neighbor's gain—are well established, this Article attempts to tease out another wrinkle of externalities and posits an additional mirrored dimension of externalities. The mirror's inflection point is between negative externalities (costs imposed on third parties) and positive externalities (benefits conferred on third parties).

Using Coase's example, regardless of which party we focus upon as the source of the externality, we could deem that party's potential decision as

establish or to modify property rights to limit access and to control resource use.”); Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 350–53 (1967) (“[P]roperty rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization.”).

4 See generally Coase, *supra* note 2, at 2–5.

5 See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1089 (1972) (proposing an integrated approach to “entitlements which are protected by property, liability, or inalienability rules” (internal quotation marks omitted)).

6 See Robert C. Ellickson, *Alternatives to Zoning: Covenants, Nuisance Rules, and Fines as Land Use Controls*, 40 U. CHI. L. REV. 681, 731 (1973) (explaining the importance of societal norms—“notion[s] of normalcy”—in the characterization of externalities).

creating either negative externalities or positive externalities. Focusing on the rancher, for example, we could characterize a rancher who chooses to allow his cattle to roam as imposing a negative externality on the farmer in the form of destroyed crops. Alternatively, we could discuss a rancher who stops his cattle from roaming as conferring on the farmer the positive externality of preserved crops. The same logic would hold if we characterized the farmer as the source of the externality.

Unlike the mirrored relationship focused on by Coase, which has spawned a rich body of scholarship, the notion that positive and negative externalities are actually mirror reflections of each other is a fundamental but underappreciated truth. Indeed, this basic insight, a concept we call “mirrored externalities,” has been almost entirely neglected in the literature. These “mirrored externalities” exist because any action with externalities associated with it can be described as a choice to do or to refrain from doing that particular action. That is, if an act results in a negative externality, refraining from that act necessarily creates a positive externality, and vice versa. As a result, any potential decision that implicates externalities can be described, alternatively, as acting or failing to act and thus can be framed as creating either negative or positive externalities.

Since this mirrored property of positive and negative externalities sits at the heart of this Article, it is worth considering a few more examples for the sake of clarity. A textbook example of an action conferring positive externalities on society is an individual’s decision to be vaccinated. The positive externality will come as no surprise: the vaccinated individual’s resulting immunity contributes to “herd immunity” that confers protection on the community at large and on unvaccinated individuals, in particular.

However, this classic example of a positive externality could easily, if perhaps somewhat less naturally, be recharacterized as a negative externality. We could construe the decision to remain unvaccinated as creating a negative externality: the unvaccinated individual is a potential disease vector and may transmit infectious diseases to others.

We find the same mirrored property when it comes to quintessential negative externalities. Consider a classic example of a negative externality: the harm associated with pollution arising from industrial processes. The pollution may result in higher health costs and increased environmental degradation. To the extent that this is true, it is equally true that cutting back on those processes would result in the positive externalities of health savings and environmental preservation.

In legal scholarship, the few scholars who have noted in specific contexts that positive and negative externalities can be mirror images of each other⁷

7 See, e.g., John F. Duffy, *Intellectual Property Isolationism and the Average Cost Thesis*, 83 TEX. L. REV. 1077, 1086 (2005) (arguing that “[n]egative externalities can be distinguished from positive externalities only by identifying a baseline, and the choice of a baseline is generally considered arbitrary as a matter of theory[,]” and “[t]hus, a situation involving an apparent ‘negative’ externality can always be described with equal accuracy as involving a ‘positive’ externality if the arbitrary baseline is changed”); Ellickson, *supra* note 6, at 731

have done so primarily in passing and have not explored the questions of framing: what factors influence whether mirrored externalities are framed as negative or positive and how does framing influence individual and policy choices?⁸ And yet, how we frame the externalities associated with a particular decision or issue can have a profound effect on how individuals process those externalities and how the legal system responds to them. This Article explores these critical, but neglected, questions.

Part I of this Article provides a foundational backdrop for our consideration of mirrored externalities. It introduces our conception of mirrored externalities and provides a brief sketch of the framing issues involved. This Part then explores ten examples of mirrored externalities and their framing. The first five are drawn from archetypal narratives of externalities in the literature. The following five demonstrate the diverse array of policy contexts in

(noting that “[t]he distinction in economic theory between harmful and beneficial spillovers reflects an underlying notion of normalcy” and that “[m]odern scholars may be surprised that Pigou thought the proper way to handle air pollution was to give bounties to factories that cleaned up emissions, rather than to tax polluters” but that “[i]n an era when it was normal to pollute with coal-burning fireplaces, Pigou was probably right in recognizing that rewards were the most efficient internalization system and in perceiving the rare nonpolluter as a producer of beneficial externalities”); Daniel B. Kelly, *Strategic Spillovers*, 111 COLUM. L. REV. 1641, 1719 (2011) (noting that “[i]f ‘harm-imposing’ and ‘benefit-withholding’ actions are indistinguishable, strategic negative spillovers—opportunistically imposing harms on others—and strategic positive spillovers—opportunistically withholding benefits from others—may be functionally equivalent”); J.B. Ruhl, *Making Nuisance Ecological*, 58 CASE W. RES. L. REV. 753, 758 (2008) (noting that wetland owners may view wetland preservation as producing “positive externalities”—ecosystem services to others—whereas adjacent landowners will view the loss of those services as a “significant economic injury”); cf. Abraham Bell & Gideon Parchomovsky, *Givings*, 111 YALE L.J. 547, 618 (2001) (recognizing that “[g]ivings and takings are mirror images of one another” and that both may involve externalities). In the social sciences literature, Annette Steinacker explains the mirrored nature of externalities, but she does not explore the possibilities of externality framing effects, which are at the heart of our Article. See Annette Steinacker, *Externalities, Prospect Theory, and Social Construction: When Will Government Act, What Will Government Do?*, 87 SOC. SCI. Q. 459, 459 (2006). She argues that initial “[a]ssignment of property rights establishes a baseline” that then dictates whether changes from those baselines are positive or negative externalities. *Id.* She concludes that “current users” are “most likely to be assigned the initial property rights to continue producing the externality,” *id.* at 475, and that the level of externalities is therefore unlikely to reach the socially optimal level, as “[l]oss aversion” and the “endowment effect” mean that initial rights holders will value those rights too highly, which will prevent optimal Coasian bargaining even in the absence of transaction costs. *Id.* at 473–74. Interestingly, while we judge her article of great worth, it has never been explored or even cited in the law review literature.

8 While a fair amount has been said about the framing of Coasian bilateral externalities, which revolves around the choice of which party to whom to attribute an externality (usually a negatively framed externality), very little has been said about the implications of framing mirrored externalities. This discussion does not attempt to allocate externalities between two conflicting sides, but rather involves labeling an actor’s choice to engage in a particular activity or refrain from that activity as generating positive or negative externalities.

which questions of externalities play a central role. Part I concludes with a brief overview of broad trends in the framing of externalities.

Part II of this Article unpacks some of the factors that affect whether we tend to gravitate to a positive or negative framing of the externalities attributed to a particular decision or issue. We suggest that these framing choices may be influenced by a number of factors, including society's baseline sense of the actor's legal or moral entitlement to engage in (or refrain from engaging in) particular behavior, the availability of a villain to whom to ascribe negative externalities, and the relative invisibility of certain externalities until disaster strikes—when the negative framing becomes the face of the crisis. The influence of these factors suggests that the framing decision is somewhat constrained, rather than infinitely malleable. Nonetheless, for many actions or decisions, our baseline intuitions may be sufficiently vague, unsettled, or contested that either a positive or negative framing is plausible or even credible.

Part III considers why these questions of framing matter so much. The choice of frame can have important, and as yet largely unexamined, consequences for both scholarly and political discourse about externalities. We examine two sets of such consequences here. First, in Section III.A, we consider the effect framing has on individual cognition—the way we think about and process externalities. Prospect theory, developed by Amos Tversky and Daniel Kahneman, suggests that we will give much greater weight and attention to negative externalities and consistently undervalue positive externalities due to loss aversion, the availability heuristic, and our bimodal response to catastrophic risk.

Then, in Section III.B, we explore four primary effects that the framing of mirrored externalities has on our politics and policy development. First, the standard array of policy prescriptions proposed for remedying negative externalities (taxes, fines, and prohibitions) differs substantially from the standard remedies proposed for positive externalities (subsidies, education, and government provision of goods). The framing choice thus shapes, even if it does not dictate, the terms of the debate over appropriate solutions. Second, the choice of frame may affect whether we think there is a real problem to be solved in the first instance. Negative externalities, we suggest, are often viewed as a call to action, while positive externalities are viewed merely as an occasion for celebration. Moreover, both loss aversion and the possibility of “availability cascades”—which are usually triggered by negative, rather than positive, stories and can generate public demand for political response⁹—suggest that we are more likely to be motivated to address negative externalities than positive ones. Third, the negative externality “call to action” is often a concerted campaign to redefine the legal and social meaning of particular activities. Thus, the framing of externalities is not only influenced by soci-

9 Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 *STAN. L. REV.* 683, 687 (1999) (describing “availability entrepreneurs” who seek to “advance their own agendas . . . by fixing people’s attention on specific problems” (emphasis omitted) (footnote omitted)).

ety's sense of underlying entitlements but also influences our sense of those very entitlements. And, finally, we consider how positive framing creates the possibility for hero narratives and perhaps even true heroes, as positive framing may make calls to sacrifice voluntarily for the common good more convincing.

I. MIRRORED EXTERNALITIES AND FRAMING

A. *Defining Mirrored Externalities*

Mirrored externalities exist because any given decision can be described as a choice to do or to refrain from doing a particular thing. If the actor's choice to do that thing (smoking) imposes negative externalities on a third party (more secondhand smoke), then her choice not to do that same thing necessarily confers positive externalities on that third party (less secondhand smoke). Conversely, if the actor's choice to do a particular thing (beekeeping) confers positive externalities on a third party (increased pollination of plants), then a choice not to do that same thing necessarily imposes negative externalities on that third party (reduced pollination of plants).¹⁰ In each set, the negative externalities are the inverse—the mirror image—of the positive externalities. Thus, we have two possible characterizations or framings of any decision, one of which focuses on negative externalities and the other of which focuses on positive externalities.

It is equally important to understand what we do *not* mean when we speak of mirrored externalities. By mirrored externalities, we do not mean that the same external effect might be viewed as positive by some third parties and negative by others (for example, that one neighbor might enjoy the green paint color the other chose for her house, while other neighbors might hate it).¹¹ Nor do we mean that externalities are reciprocal in the sense that

10 See Steinacker, *supra* note 7, at 459 (“Every externality problem can be conceived in two ways: if an action creates one type of externality, failing to act creates the opposite type.”).

11 Or, on a more controversial note, that the climate changes triggered by greenhouse gas emissions might make some colder climates more tolerable and some warmer climates less tolerable. See, e.g., J.B. Ruhl, *The Political Economy of Climate Change Winners*, 97 MINN. L. REV. 206, 221–22 (2012) (“[W]arming in [cold] regions could produce benefits such as longer growing seasons for agriculture, reduced strain on transportation infrastructure from freezing, longer outdoor recreation and tourism seasons, reduced health hazards of severe cold, fewer work stoppages due to cold weather conditions, lower winter heating bills, and better ocean transportation and resource extraction options in previously frozen regions.” (footnotes omitted)). Similarly, some things that many people view as harmful—such as pesticides, noise from barking dogs, and pornography—are affirmatively valued by others. See John Copeland Nagle, *Good Pollution*, 79 U. CHI. L. REV. DIALOGUE 31, 32 (2013) (arguing that “[w]hat some regard as a harmful pollutant is valued by others as providing a valuable benefit”).

they are the bilateral sort that Coase identified¹²—that we can, for example, view a company’s pollution as imposing costs on its neighbors or view its neighbors’ demand for clean air as imposing costs on the company.¹³ That externalities are inherently bilateral is so central to Coase’s work that these bilateral externalities are often referred to as “Coasian” externalities.¹⁴

B. *Framing Mirrored Externalities*

The framing of a Coasian bilateral externality is typically a choice about to which side to attribute a (usually negatively framed) externality. The framing of a mirrored externality is somewhat different. Rather than allocating externalities between two conflicting sides, we are choosing whether to attribute positive or negative externalities to one actor’s decision by focusing either on the externalities that flow from his choice to engage in a particular activity or from his choice to refrain from that activity. Because activity and inactivity are mirror images, their externalities will be mirror images as well. Thus, the framing question for mirrored externalities is which half of the mirrored pair (negative or positive) we emphasize for any particular issue or decision.

As we explore more carefully in Part II, there is some overlap between the factors that influence the framing of bilateral externalities and those that influence the framing of mirrored externalities, but not a perfect correlation. And as Part III makes clear, understanding the framing of mirrored externalities is as important as unpacking the framing of bilateral externalities.

C. *Examples of Mirrored Externality Framing*

In this subpart we introduce ten examples of mirrored externality frames. The first five of these are from classic examples of externalities in the literature, restated through the lens of mirrored externalities. The last five illustrate the diversity of policy areas in which we can find externality framing.

1. Pigou’s Locomotive Sparks

Many trace the concept of externalities to the economist Arthur Pigou. In laying out an argument that has grown into today’s notion of externalities, he provides the following example: “costs are thrown upon people not directly concerned, through, say, uncompensated damage done to surround-

12 See Coase, *supra* note 2, at 2 (“We are dealing with a problem of a reciprocal nature. To avoid the harm to B would inflict harm on A. The real question that has to be decided is: should A be allowed to harm B or should B be allowed to harm A?”).

13 HOLLEY H. ULBRICH, *PUBLIC FINANCE IN THEORY AND PRACTICE* 111 (2d ed. 2011).

14 See, e.g., RICCARDO REBONATO, *TAKING LIBERTIES: A CRITICAL EXAMINATION OF LIBERTARIAN PATERNALISM* 111 n.44 (2012) (providing an example of a “Coasian externality”); Alan Randall, *Coasian Externality Theory in a Policy Context*, 14 *NAT. RESOURCES J.* 35, 36–46 (1974) (describing the development of Coasian externality theory).

ing woods by sparks from railway engines.”¹⁵ Probably because of Pigou, a sparking train causing forest fires serves as a classic negative externality. However, as advertising campaigns from the Forest Service constantly remind us, forest fires are not only started, but they are also prevented. Sparks that fly and burn down forests are the negative externality framing; sparks that are dowsed, saving forests, represent a positive externality.

2. Coase’s Mismatched Neighbors

In his classic article, *The Problem of Social Cost*, Coase suggests that externalities are inherently bilateral.¹⁶ He illustrates his point with an example of two neighbors, a rancher and a farmer, and the challenges related to the “problem . . . of straying cattle which destroy crops growing on neighbouring land.”¹⁷ In probably the most well-known example of a bilateral externality, Coase argued that we can think of the rancher imposing an externality upon the farmer—the cows destroy the farmer’s crops—or the farmer imposing an externality on the rancher—the crops attract the cows and make the cows more difficult to contain.¹⁸ Of course, Coase focuses on negative externalities in discussing social costs. If Coase had been thinking of a different project, perhaps titled “*The Virtue of Social Benefits*,” each of these examples could alternatively have been captured with a positive frame. For example, the fence that Coase hypothesizes, which would effectively eliminate Coase’s bilateral externality, would have created positive externalities, protecting the farmer’s crops and keeping the rancher’s cows corralled.¹⁹

3. Demsetz’s Fur Pelts

In *Toward a Theory of Property Rights*,²⁰ Demsetz presents a forceful argument that “property rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization.”²¹ To illustrate his argument, Demsetz provides a historical example of the U.S. fur trade. He argued that a negative externality of hunting—fewer animals for others to hunt—caused a change in rights to real property in the nineteenth century, converting parts of the frontier from an unmanaged commons into large, privately owned tracts.²² This is once again a question of framing. One could reverse this negative framing and focus instead on how reducing hunting could result in more animals for others.

15 PIGOU, *supra* note 2, at 134.

16 Coase, *supra* note 2, at 2.

17 *Id.*

18 *Id.* at 2–3.

19 *Id.* at 3.

20 Demsetz, *supra* note 3.

21 *Id.* at 350.

22 *Id.* at 352.

4. Hardin's Pasture

In the late 1960s, Garrett Hardin introduced a story of herders that resulted in a special kind of externality he dubbed “the tragedy of the commons.”²³ While each herder who added a cow to the commons took the cow home for the slaughter (internalizing all the benefits of adding a cow), the costs of the cows were hoisted on all other herders on the pasture (externalizing virtually all the costs of adding a cow). These costs, themselves negative externalities, came in the form of an increasingly over-grazed pasture.²⁴ Many have criticized Hardin and argued that overgrazing was far from inevitable and that cooperation in such a context often occurs.²⁵ Had the herders come to an agreement to cut back grazing on the commons, they would have found that subtracting cows results in the positive externality of increased forage.²⁶

5. *Boomer v. Atlantic Cement Company*²⁷

This classic nuisance case arose when landowners adjacent to a cement plant complained that “dirt, smoke and vibration”²⁸ from the plant’s operations were injuring their land. Nuisance cases, of course, always emphasize the negative side of the mirrored externality set, as the plaintiffs are currently bearing those costs, and those costs justify the requested relief. Enjoining the nuisance, however, would allow plaintiffs the benefit of the “peaceful, quiet, and undisturbed use and enjoyment” of their land.²⁹

6. Wetlands

Wetlands provide a wide variety of ecosystem services to surrounding property and the community at large, including flooding and storm surge protection, erosion prevention, water filtration, fish and wildlife habitat, and recreational opportunities.³⁰ If a landowner preserves the wetlands on her property, she thus confers these positive externalities on adjacent landowners and community members. Conversely, if she instead destroys the wetlands

23 See Hardin, *supra* note 2, at 1244.

24 *Id.*

25 See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS 1–28 (1990); CAROL M. ROSE, PROPERTY AND PERSUASION 37 (1994).

26 Not surprisingly, the typical description of the tragedy of the commons employs the negative framing of the externality. See, e.g., N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 225 (6th ed. 2012) (explaining that the herders in the tragedy of the commons “neglect th[e] negative externality” of degrading the common lands for other herders and suggesting that the town could remedy this problem by creating private property rights, regulating the number of animals, taxing animals, or “auction[ing] off a limited number of . . . grazing permits”).

27 257 N.E.2d 870 (N.Y. 1970).

28 *Id.* at 871.

29 58 AM. JUR. 2D *Nuisances* § 1 (2014).

30 KIM D. CONNOLLY ET AL., WETLANDS LAW AND POLICY: UNDERSTANDING SECTION 404, at 2 (2005).

on her property, she eliminates these ecosystem services and thus imposes on others the costs of increased flooding and erosion and decreased water quality, habitat, and recreational choices.³¹

7. Education

Education is perhaps the most cited example of an activity generating positive externalities. Commonly identified societal benefits of education include lower crime rates, decreased welfare dependence, more informed voters, and a healthier and more productive workforce.³² Assuming those assertions are true, citizens who choose not to educate themselves or their children, who drop out of school, or who choose not to pursue higher education may impose corresponding costs on society by contributing to higher crime rates, higher demand for welfare, uninformed voting, and decreased economic productivity.

8. Carpooling

Carpooling produces a host of positive benefits that cannot be fully captured by those who choose to carpool: decreased traffic congestion, fossil fuel consumption, and automobile emissions.³³ Of course, the choice to ride singly rather than carpool imposes mirrored negative externalities on the community in the form of longer commutes, increased fuel consumption, and higher levels of mobile-source pollution.³⁴

31 See Ruhl, *supra* note 7, at 758 (noting that from the perspective of landowners whose wetlands have “natural capital,” the “ecosystem services” generated by those wetlands “often are positive externalities leaking off the parcel,” whereas from the perspective “of the owners of land where [those] services are enjoyed . . . curtailment of the services through degradation of the natural capital could pose significant economic injury”); see also Carey Schmidt, *Private Wetlands and Public Values: “Navigable Waters” and the Significant Nexus Test Under the Clean Water Act*, 26 PUB. LAND & RESOURCES L. REV. 97, 116 (2005) (arguing that developers reap the benefits of filling wetlands while the public has to “foot[] the bill for the lost value of the wetland and pays more to treat water, control flooding and reclamation, protect endangered species and greenspace, as well as incurring a myriad of other negative externalities”).

32 See sources cited *infra* note 84.

33 Cf. KENNETH A. SMALL, *URBAN TRANSPORTATION ECONOMICS* 151 (1992) (“Carpooling provides flexible service with far less use of highway infrastructure and parking facilities than solo driver [sic].”); Tirza S. Wahrman, *Breaking the Logjam: The Peak Pricing of Congested Urban Roadways Under the Clean Air Act to Improve Air Quality and Reduce Vehicle Miles Traveled*, 8 DUKE ENVTL. L. & POL’Y F. 181, 195–96 (1998) (“Discouraging the peak usage of automobiles on major urban roadways . . . would reduce motor vehicle use at those times of day when pollution impacts and lost traffic time are most problematic.”).

34 Lior Jacob Strahilevitz, *How Changes in Property Regimes Influence Social Norms: Commodifying California’s Carpool Lanes*, 75 IND. L.J. 1231, 1236–37 (2000) (“The prevalence of [single occupant vehicles] on American roads . . . has contributed significantly to the traffic congestion that plagues many urban neighborhoods. . . . Idling in traffic results in significant emissions of greenhouse gasses and other forms of pollution.”).

9. Antibiotic Use

Every time an antibiotic is used, the future effectiveness of the antibiotic is potentially diminished because bacteria may develop resistance to that antibiotic.³⁵ The problem of antibiotic resistance is commonly described as one of negative externalities: antibiotic users (and prescribing doctors) fail to account for the future costs of diminished antibiotic effectiveness when they decide whether to use antibiotics to treat a particular malady.³⁶ The mirror image framing of the problem is less commonly presented but not difficult to articulate: an individual's choice not to use antibiotics in a particular course of treatment confers positive externalities on future antibiotic users that the current patient cannot capture.

10. Intellectual Property

Individuals who exercise and share their creativity—whether in the form of technological innovations, poetry, art, or music—generate innumerable positive externalities. In the case of inventions, for instance, users may get far more benefit from a new technology than inventors can capture in the price they charge (particularly because many uses may be unanticipated), and other inventors may build on the initial innovation to create new and different products.³⁷ And, while we rarely think of it this way, inventors who sit on their inventions rather than patenting and developing them or who

35 See, e.g., Ramanan Laxminarayan & Gardner M. Brown, *Economics of Antibiotic Resistance: A Theory of Optimal Use*, 42 J. ENVTL. ECON. & MGMT. 183, 183–84 (2001) (“The problem of resistance represents an externality associated with the use of antibiotics, antimalarial drugs, or pesticides. Associated with each beneficial application of these treatments is the increased likelihood that they will be less effective for oneself and for others when used in the future.”).

36 Eric Kades, *Preserving a Precious Resource: Rationalizing the Use of Antibiotics*, 99 Nw. U. L. REV. 611, 613 (2005) (noting that “antibiotic consumption has a negative external effect on future consumption” because “there is no way for future potential users to pay present low-value users to forego consumption”); *id.* at 626 (“Unless there is some mechanism to force consumers to bear this cost when they buy antibiotics, they will ignore it and the populace will overuse antibiotics relative to the socially optimal level. To put this in stark terms, cheap and easy access to antibiotics today means that people will use them for very minor infections, and even for conditions that are likely caused by a virus or other microbe. Bacteria will develop resistance, and the drug will then be unavailable to treat life-threatening and seriously debilitating infections in the (possibly near-term) future.”); Laxminarayan & Brown, *supra* note 35, at 184 (“Despite the huge potential consequences of antibiotic resistance to the treatment and cure of infectious diseases, the costs of resistance are not internalized during the process of antibiotic treatment. . . . The problem, therefore, arises from the absence of economic incentives for individuals to take into account the negative impact of their use of antibiotics on social welfare.”).

37 Mark A. Lemley, *What's Different About Intellectual Property?*, 83 TEX. L. REV. 1097, 1099 (2005) (“There is a growing literature on the importance of technological spillovers to innovation and long-run productivity growth.”).

never invent in the first place impose negative externalities on society by hoarding or squandering their creativity.³⁸

* * *

The preceding examples demonstrate the wide variety of contexts in which mirrored externalities exist. There are, of course, many other examples of mirrored externalities. We could continue on in this vein, considering honeybee pollination, bank stability, smoking, obesity, crop diversity and food security, dam safety, and a whole host of other issues. That mirrored externalities arise in such a diversity of contexts suggests the importance of a careful examination of their contours and framing.

D. *Broad Trends in Externality Framing*

Given that, as the prior examples illustrate, every decision can be framed as imposing either positive or negative externalities, we might expect that both positive externalities and negative externalities would get equal play in public discourse. An examination of corpus linguistics data,³⁹ however, shows quite the opposite. In fact, we seem to be focusing more and more on the negative. The data suggests that there is a decided trend toward speaking of negative externalities, rather than positive externalities.

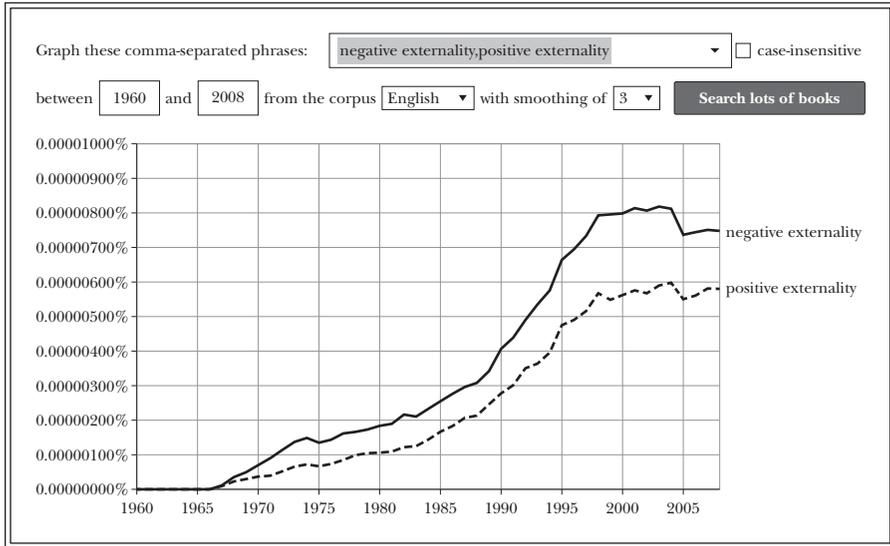
One useful tool for demonstrating this divergence is the Google Books Ngram Viewer. When we enter words or phrases in the Ngram Viewer, the viewer generates a graph depicting how those words or phrases—ngrams—have occurred in a linguistics corpus of over 500 billion words, comprised of 5.2 million books.⁴⁰ On the x-axis of the viewer is time and on the y-axis is the percentage the ngram appears out of all other ngrams of its type. The Ngram Viewer allows us to see how the frequency of word use has changed over time and can compare the data for multiple ngrams on one chart.

38 Duffy, *supra* note 7, at 1088 (noting, for example, that when a professor “chooses not to write a casebook . . . the cost of the professor’s laziness would be borne entirely by others, who would not receive the benefits of her writing”).

39 Corpus linguistics is an empirical “linguistic methodology that analyzes language function and use by means of an electronic database called a corpus.” Stephen C. Mouritsen, *The Dictionary Is Not a Fortress: Definitional Fallacies and a Corpus-Based Approach to Plain Meaning*, 2010 BYU L. REV. 1915, 1954. For a more full explanation of corpus linguistics and some of its uses in legal analysis, see *id.*

40 See *What Does the Ngram Viewer Do?*, GOOGLE BOOKS, <https://books.google.com/ngrams/info> (last visited Oct. 12, 2014). More specifically, the Google Ngram Viewer is a way to search for terms—or ngrams—within this corpus. An “ngram” is a sequence of *n* terms, which, in this case, are collected from linguistic corpora. An ngram with only one term is often referred to as a unigram, two terms is a bigram. The output of a search is displayed on a Cartesian plane. The y-axis shows the ngram’s frequency as a percentage of total ngrams of that type. For example, for the unigram “externality” the y-axis would display “externality” as a percentage of all unigrams, whereas the bigram “negative externality” is displayed as a percentage of all bigrams. The x-axis is an interval of time determined by the user that can vary from the year 1500 through 2008. See *id.*

Consider the Google Ngram for the bigrams “negative externality” and “positive externality”:



This ngram demonstrates that, since the use of the terms “positive externality” and “negative externality” took off in the 1960s, there has been a decided gap in frequency, with “negative externality” used more often than “positive externality.”⁴¹ That gap has widened since the mid-1990s.

Moreover, the word “externality” itself seems to appear more often in a negative, rather than a positive, context. Analysis of the word “externality” in a smaller, but more sophisticated linguistics corpus, the Corpus of Contemporary American English (COCA),⁴² shows that the number one word associ-

41 The Supreme Court uses the term “externality” in the sense we address in this Article only four times, and all four uses employ a negative frame. See *Koontz v. St. Johns River Water Mgmt. Dist.*, 133 S. Ct. 2586, 2595 (2013) (noting that states can legitimately “insist[] that landowners internalize the negative externalities of their conduct”); *City of Los Angeles v. Alameda Books, Inc.*, 535 U.S. 425, 445–46 (2002) (Kennedy, J., concurring in the judgment) (describing the negative externalities of adult businesses); *Solid Waste Agency v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 195 (2001) (Stevens, J., dissenting) (arguing that “destruction of aquatic migratory bird habitat” imposes “costs” or “externalities” on citizens living outside the affected area (internal quotation marks omitted)); *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 447 (1982) (Blackmun, J., dissenting) (disputing majority’s holding that a permanent physical occupation of land (installation of cables) should be characterized as a per se taking given that much “[m]odern government regulation exudes intangible ‘externalities’ that may diminish the value of private property far more than minor physical touchings”). This is, of course, only a snapshot of usage with a very small N.

42 See Mark Davies, *Introduction*, CORPUS CONTEMP. AM. ENG., <http://corpus.byu.edu/coca/> (last visited Oct. 12, 2014).

ated with “externality” is “negative.” Of the top fifteen collocates⁴³—words often found in close association with our test word “externality”—four bear a negative connotation, one is positive, and the others are neutral or ambiguous.⁴⁴ These results suggest the need to think carefully about the reasons we frame issues negatively or positively and how that affects the way we process and respond to those underlying issues.

II. FACTORS THAT INFLUENCE THE CHOICE OF FRAME

While every externality can be described as a mirrored pair—one positive and one negative—some framing choices seem much more natural or even inevitable. A number of factors may influence whether, for any particular issue or decision, the associated externalities are more naturally framed as positive or negative.

First, our sense of the baseline entitlements to engage in (or refrain from engaging in) a particular activity often plays an important role in determining how externalities are characterized. These intuitions about underlying entitlements are often bound up in the (real or perceived) existing allocation of relevant rights and the strength of those rights. “Softer” entitlements like perceived moral entitlements and social norms may likewise influence framing. Second, the availability (or absence) of a good villain may shape how externalities are perceived and presented. Third, some externalities are largely invisible—or at least underappreciated—until a crisis or disaster exposes them, and when disaster strikes, the negative framing will almost certainly predominate. The following sections explore and unpack these factors that influence whether we will tend to describe a particular issue in the negative or positive externality frame.

A. *Baseline Intuitions: Rights, Entitlements, and Social Norms*

Established or perceived baselines can undoubtedly influence whether the externalities associated with a particular issue are more naturally viewed as positive or negative. Indeed, the importance of baseline to determining

43 As Stephen Mouritsen notes: “‘Collocation is the tendency of words to be biased in the way they co-occur,’ that is, the tendency of certain words to be used in the same semantic environment as other words.” Mouritsen, *supra* note 39, at 1962 (footnote omitted) (quoting SUSAN HUNSTON, *CORPORA IN APPLIED LINGUISTICS* 68 (2002)). “A collocation program calculates collocation rates based on a node word.” *Id.* (emphasis omitted). Our node word is “externality.” Then, “[t]he program proceeds by ‘count[ing] the instances of all words occurring within a particular span, for example, four words to the left of the node word and four words to the right.’” *Id.* (footnote omitted) (quoting HUNSTON, *supra* 69).

44 The second most common collocate is “positive,” however, and the low-N for all collocates means that we cannot draw particularly firm conclusions. The complete list of the top fifteen collocates for “externality” in COCA, with the number of uses is (from most common to least common): negative (58), positive (50), environmental (43), such (41), market (40), economic (35), costs (31), effects (26), public (25), associated (24), pollution (22), goods (22), cost (21), benefits (19), and example (19). We counted environmental as a neutral term, but it is arguably more closely associated with costs than benefits.

whether an impact is properly characterized as a “cost” or a “benefit” has been recognized in a variety of disparate contexts, from Takings Clause case law⁴⁵ to Establishment Clause jurisprudence.⁴⁶ These baselines, in turn, are shaped by our sense of the legal and moral entitlements to engage in particular activities.⁴⁷

The impact of our sense of underlying entitlements on externality framing is perhaps clearest in the context of Coasian bilateral externalities. When we are trying to decide whether to attribute an externality to one side or the other, our sense of who has the strongest entitlement or right to their preferred state of being is quite likely to drive our assignment of the externality. For example, if a landowner has an established right under current zoning laws to build a tall building, we might well view his neighbor’s competing interest in collecting solar energy as the source of the negative externality in their conflict, particularly if the neighbor’s asserted interest has no current legal protection. Conversely, if the neighbor has an established “solar easement” to collect solar energy, we might be more inclined to say that the other landowner’s construction of a tall building will impose negative externalities on the neighbor.⁴⁸

45 See, e.g., *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1028–31 (1992) (using common law nuisance principles as a baseline for determining whether government development prohibitions “take” anything from the landowner); Bell & Parchomovsky, *supra* note 7, at 612–14 (discussing the appropriate baseline “from which givings and takings should be measured”).

46 See, e.g., Michael W. McConnell & Richard A. Posner, *An Economic Approach to Issues of Religious Freedom*, 56 U. CHI. L. REV. 1, 6 (1989) (arguing in the Establishment Clause context that “[t]o determine whether religion has been ‘aided’ or ‘penalized’ (terms the Court has used synonymously with ‘advanced’ and ‘inhibited’) one needs a baseline: ‘aid’ or ‘penalty’ as compared to what?”); see also STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW* 79 (2004) (“Whether we tend to call an externality harmful or beneficial depends on what we are likely to assume, if only implicitly, about the standard of reference.”); Steinacker, *supra* note 7, at 459 (arguing that the “[a]ssignment of property rights establishes a baseline” that then dictates whether an externality “is defined as a negative or positive externality”). In contrast to our arguments, Steinacker apparently believes that existing rights assignments are the only factor influencing whether an externality is viewed as positive or negative. See *id.*; see also *id.* at 462 (whether an externality is positive or negative “is determined by the assignment of the right to take action”).

47 Cf. Victor B. Flatt, *This Land Is Your Land (Our Right to the Environment)*, 107 W. VA. L. REV. 1, 41 (2004) (arguing that “[w]hen clean air, clean water, and freedom from poisons are seen as [individual] rights, their protection from ‘taking’ as a right becomes clearer, and the necessary mechanisms for protection also become clearer”).

48 The Wisconsin Supreme Court confronted this issue in *Prah v. Maretti*, 321 N.W.2d 182, 189 (Wis. 1982) (holding that unreasonable interference with access to sunlight is an actionable private nuisance). Nuisance law is often described as an irreconcilable morass. Robert G. Bone, *Normative Theory and Legal Doctrine in American Nuisance Law: 1850 to 1920*, 59 S. CAL. L. REV. 1101, 1224 (1986) (“Nineteenth century nuisance models based on natural property rights spawned a morass of doctrine incapable of rationalization within a single internally consistent normative theory.”). In our view, this apparent confusion and seeming inconsistency may largely be explained by the fact that the court must decide, implicitly at least, as a threshold matter how to frame the bilateral externality. In some

In the case of mirrored externalities, our sense of underlying legal rights may have a more nuanced but still important effect on externality framing. When the negative externalities flow from what we view as an affirmative act, we may focus on those externalities even if we believe that the actor has a legal or moral entitlement to create them. For example, even if we think that an actor has a right to emit certain effluents, the resulting effects on neighbors may still be framed as negative externalities, rather than framed in terms of the positive externalities that eliminating the emissions might produce. The tendency to focus on the negative framing is, however, likely to be even more pronounced if we question or affirmatively reject the actor's right to engage in that activity. Thus, for example, negative externalities generally dominate policy discussions of drunk driving.⁴⁹

In contrast, when the negative externalities flow instead from a decision not to act (not to vaccinate, not to seek education, not to keep honeybees) we may be more likely to instead frame the situation by emphasizing the mirrored positive externalities. This dichotomy—between the way we treat situations where the negative externalities flow from action and those where the negative externalities flow from perceived inaction—seems bound up in underlying assumptions about the limits of government power to force us to act and a corresponding “right” to be free of government compulsion to act. Recall, for instance, the infamous “broccoli horrible”⁵⁰ that featured so prominently in the debates over the constitutionality of the Affordable Care Act (ACA). Opponents of the act posited a slippery slope of regulation that would ultimately justify the federal government mandating that individuals purchase (and maybe even consume!) broccoli.⁵¹ While there is undoubtedly slipperiness in the activity/inactivity distinction, it resonated strongly

important sense, then, the question confronting the Wisconsin Supreme Court was whether the developer's building of the tall building should be viewed as imposing costs on the neighbor, or the neighbor's demand for unobstructed solar access should be viewed as imposing costs on the developer. Courts can look to a number of factors to aid this framing decision, such as the character of the neighborhood, the predominant uses of surrounding property, the value of the competing uses, and which use was earlier in time, but ultimately the court must settle on one of these conflicting frames.

49 The same does not seem to be true of the various “take the keys” campaigns. This may not be altogether surprising because often times manufacturers of alcohol fund and even engage in these campaigns. Beyond this, as we discuss below, when attempting to convince people to take voluntary actions, a positive framing may often be more effective. See *infra* subsection III.B.4.

50 Nat'l Fed'n of Indep. Bus. v. Sebelius, 132 S. Ct. 2566, 2625 (2012) (Ginsburg, J., dissenting). Justice Ginsburg described this argument in her dissent, noting that Chief Justice Roberts (for the majority) “posits” that Congress “might adopt [a mandate that citizens purchase broccoli], reasoning that an individual's failure to eat a healthy diet, like the failure to purchase health insurance, imposes costs on others.” *Id.* at 2624. This description suggests that some part of what rankled Chief Justice Roberts and the other members of the majority was the implication that an individual's decision not to eat a healthy diet could properly be framed as inflicting negative externalities (“imposing costs”) on others.

51 See *id.* at 2591 (majority opinion).

enough with five Supreme Court Justices to form the basis of the majority's conclusion that Congress lacked the Commerce Clause authority to enact the ACA.⁵²

The role of these real or perceived entitlements in externality framing is also evident in the framing of patent externalities. Patent scholars generally emphasize the positive externalities generated by inventors and their inventions, rather than the negative externalities that failure to invent would impose on society. Indeed, many patent scholars have observed that the notion of "positive externalities" has dominated the discourse about intellectual property rights,⁵³ and it certainly seems most natural to talk about the inventor's right to the fruits of his creativity (and thus the positive externalities that his sharing of those fruits creates), rather than the public's right to enjoy the benefits of that creativity (and the negative externalities that arise when an inventor withholds his invention from the public). This characterization seems driven by underlying notions of property and autonomy—the Lockean notion that a person owns himself and thus the fruit of his labor⁵⁴ (a notion that is the fundamental building block of the labor theory of property)⁵⁵ and the sense that a person has an important autonomy interest in making his own choices about whether to apply his intellect, creativity, and energy to a particular problem (or at all).⁵⁶

An exchange between two prominent patent scholars, John Duffy and Mark Lemley, highlights the difficulties in recharacterizing patent externalities from a positive to a negative frame. When Duffy critiqued one of Lemley's theories about how expansive intellectual property rights should be⁵⁷ as

52 See *id.* at 2589 ("To an economist, perhaps, there is no difference between activity and inactivity; both have measurable economic effects on commerce. But the distinction between doing something and doing nothing would not have been lost on the Framers, who were 'practical statesmen,' not metaphysical philosophers."). Apparently, positing that Congress has the power to force people to buy and eat broccoli risks a slippery slope toward tyranny in which kale-based smoothies replace ice cream and in which the government sentences people to fat camps and forces them to do Pilates.

53 Wendy J. Gordon, *Intellectual Property*, in *THE OXFORD HANDBOOK OF LEGAL STUDIES* 617, 622 (Peter Cane & Mark Tushnet eds., 2003) ("[M]ost of IP law is concerned with internalizing positive externalities."); Brett Frischmann, *Spillovers Theory and Its Conceptual Boundaries*, 51 *WM. & MARY L. REV.* 801, 801 n.1 (2009) (arguing that it would "be better to modify [Gordon's] observation by dropping the word 'internalizing'—that is, to say that most of IP law is concerned with positive externalities because of the nature of the intellectual activities and resources being subject to legal regulation").

54 JOHN LOCKE, *THE SECOND TREATISE ON CIVIL GOVERNMENT* 20 (Prometheus Books 1986) (1690) ("Though the earth and all inferior creatures be common to all men, yet every man has a *property* in his own *person*. This nobody has any right to but himself. The *labour* of his body and the *work* of his hands, we may say, are properly his." (emphasis added) (internal quotation marks omitted)).

55 *Id.* (describing how a person takes ownership over something by mingling it with his labor).

56 See Margaret Jane Radin, *Property and Personhood*, 34 *STAN. L. REV.* 957, 998 (1982).

57 See Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 *TEX. L. REV.* 1031, 1050 (2005) (arguing that "[i]nternalization of positive externalities is not necessary

drawing “an untenable distinction between positive and negative externalities,”⁵⁸ Lemley felt free to respond merely that, while Duffy’s basic point was “true enough,” Duffy’s attempt to recharacterize the positive externalities of intellectual property as negative externalities felt “forced.”⁵⁹ He explained: “We could, I suppose, talk about vesting property rights collectively in the public in ideas that haven’t yet been invented, so that a failure to invent imposes negative externalities on those collective property owners. But no one does so.”⁶⁰

The characterization of childhood vaccination externalities provides another interesting example of the role of (assumed or established) underlying entitlements. Like patent externalities, vaccination externalities are most often described in the literature as positive externalities.⁶¹ This positive framing of the societal benefits that flow from the choice to vaccinate one’s children (rather than the societal costs that flow from choosing not to vaccinate) is likely informed by the sense that individuals have an underlying autonomy interest—and perhaps even a constitutional right—to make that decision without undue government interference. While the Supreme Court upheld compulsory smallpox vaccination enforced by a five dollar fine in *Jacobson v. Massachusetts*,⁶² the 1905 holding is arguably inconsistent with more recent precedent recognizing the right to privacy and bodily integrity and suggesting that the right to refuse medical treatment may be entitled to heightened scrutiny under the Fourteenth Amendment.⁶³

at all unless efficient use of the property requires a significant investment that cannot be recouped another way” and “even then, economic theory properly requires not the complete internalization of positive externalities but only the capture of returns sufficient to recoup the investment”).

58 Duffy, *supra* note 7, at 1081. Duffy argues that:

Negative externalities can be distinguished from positive externalities only by identifying a baseline, and the choice of a baseline is generally considered arbitrary as a matter of theory. Thus, a situation involving an apparent “negative” externality can always be described with equal accuracy as involving a “positive” externality if the arbitrary baseline is changed.

Id. at 1086.

59 Lemley, *supra* note 37, at 1098 n.4.

60 *Id.*

61 TIM HARFORD, *THE UNDERCOVER ECONOMIST* 108 (rev. ed. 2012) (describing childhood vaccination in a positive externality frame); Michael Abramowicz, *An Industrial Organization Approach to Copyright Law*, 46 WM. & MARY L. REV. 33, 55 (2004) (“An example of a positive externality is vaccination, which benefits not only the patient but also third parties.”).

62 197 U.S. 11 (1905).

63 See, e.g., *Washington v. Glucksberg*, 521 U.S. 702, 710, 728 (1997) (assuming, without deciding, that individuals have a Fourteenth Amendment right to refuse medical treatment and distinguishing that assumed right from the claimed right to assisted suicide); *Cruzan v. Dir., Mo. Dep’t of Health*, 497 U.S. 261, 278 (1990) (observing in dicta that “[t]he principle that a competent person has a constitutionally protected liberty interest in refusing unwanted medical treatment may be inferred from our prior decisions,” including *Jacobson* itself); *Washington v. Harper*, 494 U.S. 210, 221, 223 (1990) (recognizing that a

Of course, the status of any constitutional right to refuse vaccination remains unsettled, and many states have enacted compulsory childhood vaccination laws. However, the fact that most state laws provide religious or philosophical exemptions to these requirements suggests that many citizens feel that individuals should be able to make that choice for themselves and their children.⁶⁴ In the case of vaccination, then, we might be more comfortable describing the decision to vaccinate as creating positive externalities than describing failure to vaccinate as creating negative externalities because of an underlying sense that an individual is, as a constitutional and moral matter, generally entitled to make his own medical decisions about his body. These existing entitlements, however, may not be sufficiently strong to preclude the negative framing of the externalities. And, in fact, if most of the public came to hold the view that people are morally *obligated* to vaccinate themselves and their children for the benefit of others, that view might be somewhat inconsistent with the positive framing of vaccination externalities, which would then push toward a more negative framing.⁶⁵

As this last possibility suggests, in addition to underlying rights, in some contexts softer entitlements, as well as social obligations, norms, and niceties, may also influence our baseline intuitions about how a particular externality should be framed. Robert Ellickson has established that, in the context of Coasian externalities, people allow norms to dictate the behavior of neighbors, even when legal rights might point in another direction.⁶⁶ There seems little reason to doubt Ellickson's insights would have significant hold in the context of mirrored externalities as well. Expected behavior would seemingly drive much of whether people frame externalities as positive or negative. In the most extreme cases, these norms may mean that only one characterization of an externality is socially acceptable. Take, for example, the effect that motorcycle helmet laws have on the supply of healthy organs available for donation. Motorcycles have often been characterized as "donorcycles," because the high rate of fatal motorcycle accidents among otherwise healthy young people creates a supply of healthy organs available

prisoner "possesses a significant liberty interest in avoiding the unwanted administration of antipsychotic drugs" but refusing to grant that interest heightened scrutiny in the prison context given "the State's interests in prison safety and security").

64 See JARED P. COLE & KATHLEEN S. SWENDIMAN, CONG. RESEARCH SERV., RS21414, MANDATORY VACCINATIONS: PRECEDENT AND CURRENT LAWS 3 (2014) (noting that "[d]espite the wide-spread imposition of school vaccination requirements, many states provide exemptions for medical, religious, or philosophical reasons").

65 Cf. Wendy J. Gordon, *Of Harms and Benefits: Torts, Restitution, and Intellectual Property*, 34 McGEORGE L. REV. 541, 548 (2003) ("Some philosophers have suggested that one should not be entitled to claim a right of payment for doing those things that one is morally obligated to do." (emphasis omitted)).

66 Robert C. Ellickson, *Of Coase and Cattle: Dispute Resolution Among Neighbors in Shasta County*, 38 STAN. L. REV. 623, 673 (1986); see also Ellickson, *supra* note 6, at 686 n.17 (describing how the decorative design choices by owners of houses and barns in small towns throughout Vermont are promoted through aesthetic community norms rather than land use laws).

for donation. Thus, if motorcycle helmet laws prevent deaths of young riders, it is theoretically possible to describe those laws as creating negative externalities for those individuals awaiting transplants.

It is, however, hard to imagine anyone describing efforts to reduce accidental deaths of young people as imposing negative externalities on those in need of organ transplants. Indeed, a recent study examining the effect of motorcycle helmet laws on the availability of organs for transplantation couched its inquiry as whether helmet laws “reduce a beneficial externality [of rider death] by decreasing the supply of viable organ donors.”⁶⁷ (They do.)⁶⁸ The awkward framing (reducing a positive externality) is almost certainly an attempt to avoid the even more awkward framing of life-saving as inflicting negative externalities.⁶⁹ Put more starkly, while it may be tricky to speak of the positive externalities of young people dying, it seems all but inconceivable to speak of the negative externalities of young people living.

Additionally, this example suggests that identifying positive externalities of particularly undesirable events may also be unpalatable. In the motorcycle example, ascribing to motorcycle deaths the silver-lining “positive externality” of organ donation seems natural only in comparison to describing saving those lives as imposing negative externalities. The attempt to assign positive externalities to something as undesirable as untimely death is itself a risky endeavor. Recall, for instance, that Philip Morris was roundly condemned for commissioning a report that argued that smoking saved the Czech Republic money because smokers died earlier.⁷⁰ It is hardly surprising that high-

67 Stacy Dickert-Conlin et al., *Donorcycles: Motorcycle Helmet Laws and the Supply of Organ Donors*, 54 J.L. & ECON. 907, 907 (2011); see also *id.* at 929 (concluding that “helmet laws . . . decrease the positive externalities of helmetless riding by reducing the supply of organ donors”).

68 *Id.* at 929.

69 Scholars have identified other, less extreme contexts in which it seems more natural, given underlying norms and entitlements, to speak of reducing a positive externality rather than creating a negative externality. See, e.g., James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870, 954 (2005) (noting, in the context of valuing ecosystems, that “[a]lthough one can imagine settings where degrading critical habitat can create obvious negative externalities, such as erosion, making habitat less attractive to species seems closer to eliminating positive externalities, such as providing nesting and foraging grounds and water retention” and that “[i]n this setting, it does seem harder to argue that society should demand generation of positive externalities without payment”).

70 See Lee Dembert, *Tobacco Giant’s Analysis Says Premature Deaths Cut Costs in Pensions and Health Care: Critics Assail Philip Morris Report on Smoking*, N.Y. TIMES, July 18, 2001, http://www.nytimes.com/2001/07/18/news/18iht-smoking_ed3_.html. In discussing the immorality of framing premature smoking-caused deaths as creating positive externalities, Jon D. Hanson and Kyle D. Logue explain that policymakers do not consider this argument in similar contexts:

[I]n debates over the appropriate response to environmental hazards, we do not hear polluters urging policymakers to take into account the many pension-saving deaths that would result if Congress would only leave polluters unregulated. Likewise, opponents of gun control are not heard to tout the enormous financial

lighting the positive externalities of early death (especially deaths the company itself hastened) provoked public outrage.

One might argue, more generally, that another factor that influences externality framing is how much we like or value the activity in question. Certainly, in the case of Coasian bilateral externalities, an assessment of the importance and desirability of each competing activity may well influence which actor is assigned the externality. For example, if we think solar energy collection is important and desirable, we may be more likely to attribute the negative externality to construction of the tall building next door that blocks the sunlight.⁷¹

In a somewhat analogous context, the Supreme Court has noted that whether we characterize a regulation as “harm-preventing” or “benefit-conferring” depends on just such an assessment. In the takings case of *Lucas v. South Carolina Coastal Council*,⁷² Justice Scalia, writing for a majority of the Supreme Court, rejected the State’s argument that a regulation adopted to prevent serious harm (prevent a “noxious use”) should not trigger the Constitution’s compensation requirement, even if the regulation deprives the owner of all economically viable use of his land.⁷³

In rejecting this proposed dividing line between compensable and non-compensable state intrusions on property rights, Justice Scalia argued that “the distinction between ‘harm-preventing’ and ‘benefit-conferring’ regulation is often in the eye of the beholder.”⁷⁴ Justice Scalia noted that, in the *Lucas* case itself, one could describe the legislature’s prohibition on Lucas building on his coastal property as “necessary” either “in order to prevent his use of it from ‘harming’ South Carolina’s ecological resources; or, instead, in order to achieve the ‘benefits’ of an ecological preserve.”⁷⁵

Justice Scalia argued that there was no “objective, value-free basis”⁷⁶ for choosing between these two characterizations. Instead, he suggested:

Whether one or the other of the competing characterizations will come to one’s lips in a particular case depends primarily upon one’s evaluation of the worth of competing uses of real estate. A given restraint will be seen as mitigating “harm” to the adjacent parcels or securing a “benefit” for them,

windfall to society from all the premature deaths caused by handguns. And in no context other than smoking that we can identify do we hear calls for affirmative subsidies to promote the positive externality of premature death.

Jon D. Hanson & Kyle D. Logue, *The Costs of Cigarettes: The Economic Case for Ex Post Incentive-Based Regulation*, 107 YALE L.J. 1163, 1256 (1998).

71 For environmentalists, the choice between solar easements and competing uses has become particularly complicated in California, as many solar panels are being blocked not by buildings but by trees. See Felicity Barringer, *Trees Block Solar Panels, and a Feud Ends in Court*, N.Y. TIMES, Apr. 7, 2008, http://www.nytimes.com/2008/04/07/science/earth/07redwood.html?pagewanted=all&_r=0.

72 505 U.S. 1003 (1992).

73 See *id.* at 1024–26.

74 *Id.* at 1024.

75 *Id.*

76 *Id.* at 1026.

depending upon the observer's evaluation of the relative importance of the use that the restraint favors.⁷⁷

Because one's characterization of the regulation as imposing harms or conferring benefits turned on one's assessment of the relative importance of the competing interests rather than on some neutral principle, the distinction could not "serve as a touchstone to distinguish regulatory 'takings'—which require compensation—from regulatory deprivations that do not require compensation."⁷⁸

It seems that the Court is correct that we may frame a regulation that may produce a regulatory takings challenge as either benefit-conferring or harm-avoiding. In fact, these are the very narratives that we would expect the affected parties to trot out in any regulatory takings context, each emphasizing the version of the story that leads to that party's desired outcome: the government regulator focusing on the value of its regulation in protecting others from harm and arguing no taking occurred, and the affected property owner focusing on the unfairness of having to finance the government's conferral of benefits on others and arguing that compensation is required. Because both narratives have a way of weaving through every regulatory takings case, Justice Scalia looks to see if there is some objective, non-results oriented way for judges to pick between these narratives and argues that all we are left with is factual aesthetics: do we like the regulation or the regulated activity more? The choice Justice Scalia describes then is, essentially, a choice about to whom to attribute the externality: is the property owner externalizing the costs of beach development on his neighbors or is the government (on behalf of the neighbors) externalizing the cost of beach protection on the waterfront property owner?

This situation is quite different, however, from that of mirrored externalities. If we were to hypothesize, for instance, that people would tend to assign negative externalities to things they dislike and positive externalities to things they like,⁷⁹ that would not tell us much about how people choose which of two mirrored externalities to emphasize. If we think about it, stop-

⁷⁷ *Id.* at 1025 (citation omitted).

⁷⁸ *Id.* at 1026. Justice Scalia did not elucidate the exact manner in which the assessment of the importance of the competing interests affects the characterization of the regulatory prohibition as "harm-avoiding" or "benefit-conferring." Presumably, the State was arguing for the "harm-avoidance" framing (since the State believed that characterization obviated the need for compensation), which means that Scalia was suggesting that if we think the activity prohibited by the regulation (beachfront building) is bad, then we characterize the regulation prohibiting that activity as "harm-avoiding." *Id.* at 1026.

⁷⁹ Other things being equal, it seems a reasonable hypothesis that we will be more inclined to ascribe positive externalities to an activity, regulation, or decision we view positively and to ascribe negative externalities to an activity, regulation, or decision we view negatively. This tendency might be viewed as a close cousin of the "affect heuristic," which suggests that "people tend[] to judge" an activity as high benefit and low risk if they like that activity and "high risk and low benefit" if they dislike the activity. See Melissa L. Finucane et al., *The Affect Heuristic in Judgments of Risks and Benefits*, 13 J. BEHAV. DECISION MAKING 1, 4 (2000).

ping development on the beach may result in positive externalities (e.g., less beach erosion). However, allowing for development would result in negative externalities (e.g., more beach erosion). Contrapositive logic seems to dictate that if we like the first of these, we dislike the mirrored pair. A person advocating against beach development could just as easily focus on the positive externalities as the negative externalities, and vice versa.

Taking a step away from *Lucas* and thinking about externalities more generally, we quickly find that for any particular action we approve of (e.g., expanding public transportation) that has positive externalities (e.g., reduced pollution), the mirrored, disfavored inaction will generate the mirrored negative externalities (e.g., increased pollution). Thus, either the negative or positive framing would satisfy our desire to attribute positive externalities to things we like and negative externalities to things we do not. Conversely, if we disapprove of an action (e.g., gun ownership) that has positive externalities (e.g., increased ability for people to practice self-defense), we presumably approve of the decision not to take that action, even though that choice produces negative externalities (e.g., decreased ability for people to practice self-defense). In this latter situation, neither emphasizing the positive externalities of our disfavored action nor emphasizing the negative externalities of our favored inaction will satisfy our attribution preferences.

B. *The Availability of a Compelling Villain*

A second factor that influences the way we frame externalities is the availability (or absence) of a compelling villain. It is much easier to tell the negative story—focused on the negative externalities of a particular course of conduct—if there is a compelling villain to star in that tale. For example, pollution is perhaps the most cited example of a negative externality.⁸⁰ This is unsurprising, given that point-source polluters—such as factories and power plants—are usually easy to identify and serve as focal points for citizen mobilization. Indeed, the politics of point-source pollution are classic “entrepreneurial politics”⁸¹ with widely dispersed regulatory benefits and concentrated regulatory costs. The negative framing of pollution externalities likely resonates so deeply, in part, because of these ready-made villains.⁸²

80 See, e.g., SUSAN GRANT & CHRIS VIDLER, HEINEMANN ECONOMICS FOR OCR 62 (2004) (cataloguing negative externalities including pollution, forest destruction, and “[a]ntisocial behaviour by consumers of alcohol and tobacco” that “can affect the well-being and health of ‘innocent’ third parties”); MANKIW, *supra* note 26, at 226 (“Pollution is a negative externality that can be remedied with regulations or with corrective taxes on polluting activities.”); Abramowicz, *supra* note 61, at 55 (“A classic example of a negative externality is pollution; the polluter does not bear the full cost of its activity.”).

81 James Q. Wilson, *The Politics of Regulation*, in *THE POLITICS OF REGULATION* 357, 370 (James Q. Wilson ed., 1980) (emphasis omitted).

82 Pollution caused by mobile sources, such as smog from automobile emissions, presents a more complicated scenario. It may be difficult to cast automobile drivers as villains if most of the community’s citizens drive cars.

The “polluter pays” principle is a classic manifestation of framing polluters as bad actors who should pay for the harms they inflict on others.⁸³

In contrast, consider education, which is perhaps the quintessential positive externality. As discussed in Part I, economists and advocates typically explain that education creates numerous benefits to society that cannot be captured by the educated individuals themselves, including more informed voting, lower crime rates, and economic benefits such as productivity and faster dissemination of new technologies.⁸⁴ Of course, failing to educate the country’s children generates the mirrored set of negative externalities: less informed voting, higher crime rates, and economic stagnation.

Why, then, does the positive externality framing so dominate academic and political discourse? One possible explanation is that the education-failure narrative lacks an obvious bad guy to drive the negative story home. Edu-

83 Of course, the “polluter pays” narrative may have less resonance when the polluters are numerous and dispersed, as is increasingly the case for growing environmental threats like climate change. See, e.g., Douglas A. Kysar & Michael P. Vandenbergh, *Introduction: Climate Change and Consumption*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10,825, 10,828 (2008) (arguing that policymakers cannot ignore climate change contributions from individual consumption). Even in such circumstances, however, activists have still sometimes attempted to identify segments of the responsible population as villains to be blamed for negative externalities. Conversations with Notre Dame Law Professor John Nagle about this point resulted in the following memorable example: in 2002, the Evangelical Environmental Network launched a “What would Jesus drive?” campaign shaming SUV drivers for “filling [their] neighbor[s]’ lungs with pollution.” *Would Jesus Drive an SUV?*, ABC NEWS (Nov. 21, 2002), <http://abcnews.go.com/GMA/story?id=125583>.

84 See, e.g., MANKIW, *supra* note 26, at 199 (detailing the positive externalities of education, including “more informed voters, which means better government for everyone,” “lower crime rates,” and increased “development and dissemination of technological advances”); WILLIAM A. McEACHERN, *CONTEMPORARY ECONOMICS* 81 (3d ed. 2012) (“For example, education generates positive externalities. Society as a whole benefits from education. Those who acquire more education become better citizens, can read road signs, and become more productive workers who are better able to support themselves and their families. Educated people also are less likely to require public assistance or to resort to violent crime for income. Thus, education benefits those getting the education, but it also confers benefits on others.”); ULBRICH, *supra* note 13, at 120 (“Yet another approach to encouraging the consumption of goods with positive externalities, such as education, is to attempt to stimulate a stronger preference for those goods through educational and informational methods.”); John O. McGinnis, *The Enlightenment Case for Vouchers*, 57 N.Y.U. ANN. SURV. AM. L. 75, 79 (2000) (“Education is thought, in economic terms, to have positive externalities. In other words, since education creates a network of people with a human capital that is cumulatively powerful, education produces a greater consumer surplus and people who are better able to take part in democratic governance. Thus, we all benefit from the education of others.” (footnote omitted)). *But see* Joseph M. Dodge, *Taxing Human Capital Acquisition Costs—Or Why Costs of Higher Education Should Not Be Deducted or Amortized*, 54 OHIO ST. L.J. 927, 977 (1993) (“[M]ost of the positive externalities attributed to education (lower crime rates, lower dependence on welfare, better health, more efficient markets, democratic values), by their nature, show diminishing marginal returns with incremental levels of education. Indeed, too much education entails negative externalities: An over-educated work force tends to have low morale, resulting in an actual loss of productivity.” (footnote omitted)).

cation issues involve classic “majoritarian politics,” with dispersed costs as well as dispersed benefits.⁸⁵ Thus, when public schools are underfunded, the only obvious villain may be taxpayers themselves.⁸⁶ Of course, taxpayers are unlikely to be persuaded by a story that paints them as their own worst enemies. Similarly, citizens are unlikely to vilify their own children for failing to learn or to envision their own children becoming uninformed voters, criminals, or unproductive workers and inflicting the attendant costs on society. As in almost all other contexts, vilifying enemies is most effective “when the enemy is a clearly delineated, ‘well-defined’ ‘other.’”⁸⁷ When such an enemy is unavailable, the positive framing of the relevant externality may be more likely to prevail.⁸⁸

C. *Exposure of Invisible Externalities*

Certain kinds of externalities are both difficult to see and difficult to measure, usually because they involve increased risk rather than an immediately discernible, concrete effect. For example, so-called “security externalities”⁸⁹ that occur when “a private firm undertakes an action that creates a vulnerability (or possibly an uncompensated benefit) elsewhere in the economy”⁹⁰ may be largely invisible until disaster strikes.⁹¹ Similarly, the externalities created by maintaining (or failing to maintain) a dam, levee, or other

85 Wilson, *supra* note 81, at 367 (“When both costs and benefits are widely distributed, we expect to find *majoritarian* politics.”).

86 It is certainly possible that other villains might be identified in the public education context. In some states, for example, public school advocates are increasingly casting Tea Party candidates (and other right-wing politicians) as enemies of the public good who are waging a full-blown “assault” on public education. See, e.g., CJ Werleman, *America Is Declining at the Same Warp Speed That’s Minting Billionaires and Destroying the Middle Class*, ALTERNET (May 5, 2014), <http://www.alternet.org/tea-party-and-right/how-quickly-america-declining-same-warp-speed-thats-minting-billionaires-and>. Perhaps these narratives will be more likely to employ the negative externality frame. Cf. *id.* (“What kind of future society the defectors from the public school rolls envision I cannot say. However, having spent some time in the Democratic Republic of Congo—a war-torn hellhole with one of those much coveted limited central governments, and, not coincidentally, a country in which fewer than half the school-age population goes to public school—I can say with certainty that I don’t want to live there.” (quoting an advocate) (internal quotation marks omitted)).

87 Lisa Grow Sun & RonNell Andersen Jones, *Disaggregating Disasters*, 60 UCLA L. REV. 884, 942 (2013) (quoting Oren Gross, *Chaos and Rules: Should Responses to Violent Crises Always Be Constitutional?*, 112 YALE L.J. 1011, 1037 (2003)).

88 It is interesting that among the segment of society who rejects public education most completely, the reasons tend to demonize educators, unions, and others in the public school system as unmotivated and lazy or even motivated by some nefarious goal (e.g., the hopes of brainwashing innocent children to accept one form of propaganda or another). While these ways of thinking (particularly the latter) sit outside of the mainstream, they do illustrate how one might harness a villain narrative within the arena of educational policy.

89 Philip E. Auerwald et al., *Where Private Efficiency Meets Public Vulnerability: The Critical Infrastructure Challenge*, in SEEDS OF DISASTER, ROOTS OF RESPONSE 9 (Philip E. Auerwald et al. eds., 2006) (introducing and discussing the concept of security externalities).

90 *Id.*

flood control infrastructure may not be apparent until failure and flooding occurs.

Once disaster strikes, however, the negative externality frame becomes the face of the disaster. At least for a time then, post-disaster, the negative framing of externalities is likely to dominate public and scholarly discourse. After Hurricane Katrina, for instance, the rhetoric surrounding New Orleans's ill-fated levees focused on the tragic costs to New Orleans and its citizens of the levee failure, rather than the potential (future) advantages of better-maintained levees in preventing future flooding.⁹²

Similarly, during the recent financial crisis, the rhetoric focused on the way that large bank failures might cascade through the economy, leading to national, and even global, economic collapse. In the moment of crisis, no one was discussing the positive externalities of maintaining a stable banking system; all eyes were watching the “dire consequences of Lehman [] [Brothers'] failure”⁹³ ripple across the globe: “World markets fell, and the dollar wavered as investors everywhere sold assets across the board and sought refuge in the safest securities they could find, government bonds.”⁹⁴ Soon, the rest of the United States' “largest and most powerful banks” were labeled “Too Big To Fail,”⁹⁵ an appellation that itself underscored the fear that cascading failures would trigger global economic collapse. Like natural disasters, the financial meltdown suggests that, in times of crisis, we gravitate toward the negative framing.

This analysis suggests that, even outside of crisis, the framing of externalities may have a temporal dimension: if the status quo (often assumed to be the natural, unchangeable state of the world) provides services—positive externalities—the loss or destruction of which will result in societal costs—negative externalities—those services may be unrecognized or underappreciated until they are lost.⁹⁶ We may not recognize the societal benefits of flourishing forests, healthy wetlands, thriving honeybee populations, and a

91 *Id.* at 160 (arguing that, whereas air pollution “can be monitored on a minute-to-minute basis[,] [t]he same does not hold for security externalities, where the consequences of lapses in security may not materialize for months or years”).

92 *See, e.g.,* Joseph B. Treaster & N.R. Kleinfield, *Hurricane Katrina: The Overview; New Orleans Is Inundated as 2 Levees Fail; Much of Gulf Coast Is Crippled; Toll Rises*, N.Y. TIMES, Aug. 31, 2005, <http://query.nytimes.com/gst/fullpage.html?res=940CE4DF1731F932A0575BC0A9639C8B63> (“A day after New Orleans thought it had narrowly escaped the worst of Hurricane Katrina’s wrath, water broke through two levees on Tuesday and virtually submerged and isolated the city, causing incalculable destruction and rendering it uninhabitable for weeks to come.”).

93 Landon Thomas Jr., *Examining the Ripple Effect of the Lehman Bankruptcy*, N.Y. TIMES, Sept. 15, 2008, http://www.nytimes.com/2008/09/15/business/worldbusiness/15iht-lehman.4.16176487.html?_r=0.

94 *Id.*

95 Mehrsa Baradaran, *Banking and the Social Contract*, 89 NOTRE DAME L. REV. 1283, 1285 (2014) (internal quotation marks omitted).

96 JONI MITCHELL, *Big Yellow Taxi*, on LADIES OF THE CANYON (Rhino Entertainment Co. 1970) (“Don’t it always seem to go that you don’t know what you’ve got ‘til it’s gone. They paved paradise and put up a parking lot.”).

stable climate until they are compromised. Thus, many externalities are likely to go unnoticed in their positive form and attract attention only once they have transitioned to negative externalities. Attempts to identify and quantify the value of ecosystem services are designed to try to counter this very phenomenon.

III. WHY FRAMING MATTERS

As the preceding Section suggests, we are constantly making choices, whether consciously or subconsciously, about the ways we frame externalities, and, in many contexts, there is sufficient space and opportunity for different potential narratives to take hold. The choice of stories is not unlimited or unconstrained, but usually there will be a choice between positive and negative stories we can tell. Certainly, the way we characterize a particular externality is influenced by our underlying intuitions about appropriate baselines. But baselines are often contested, rather than settled; fluid, rather than fixed; and malleable, rather than inflexible.⁹⁷ Not all property rights are clearly defined;⁹⁸ not all constitutional rights are clearly demarcated.⁹⁹ Likewise, the public may be divided about the strength of a moral claim to engage in a particular activity. Even where there is currently consensus on those matters, public opinion can shift over time.¹⁰⁰

The externality framing of a particular situation, then, may well change over time. If disaster brings the negative externality framing to the fore, the passage of time and the return to normalcy may shift the framing back to the positive (and perhaps largely invisible) frame. Conversely, a story about the positive externalities of something like vaccination may well flip to a negative framing if disease outbreaks occur.¹⁰¹ Likewise, the dominant framing can

97 Cf. McConnell & Posner, *supra* note 46, at 5–12 (discussing four different possible baselines in the Establishment Clause context); J.B. Ruhl & James Salzman, *Gaming the Past: The Theory and Practice of Historic Baselines in the Administrative State*, 64 VAND. L. REV. 1 (2011) (discussing controversies and strategic behavior surrounding the selection of regulatory baselines in a wide variety of contexts).

98 See, e.g., STEINEMANN, *supra* note 1, at 199 (“In cases involving public goods, such as clean water, [with] unclear property rights, the resolution becomes more difficult. Who owns the right to clean water? . . . How should effects in the future (and on future individuals’ rights) be considered in present value terms?”).

99 See *supra* note 63 and accompanying text, for a discussion of the current status of the right to refuse medical treatment such as vaccines.

100 Ellickson has noted the importance of shifting normative baselines in determining the assignment of Coasian externalities. See Ellickson, *supra* note 6, at 731 (“[T]he proper tagging of an externality should change as normal conditions change. Automobiles when they first appeared were nuisances to horse travel; as cars began to swamp horse-drawn vehicles in number, horses were properly perceived as the nuisance.”).

101 See, e.g., Becca Aaronson, *Outbreaks Make a Case for Vaccinations*, N.Y. TIMES, Sept. 7, 2013, <http://www.nytimes.com/2013/09/08/us/outbreaks-make-a-case-for-vaccinations.html?module=Search&mabReward=relbias%3A%2C%7B%22%22%3A%22RI%3A5%22%7D> (“A measles outbreak in a North Texas megachurch, where vaccinations were discouraged, and soaring rates of whooping cough across the state are drawing renewed calls

shift if the positive externality story begins to focus on those who freeride on the positive externalities generated by others. In their classic article, *One View of the Cathedral*, Calabresi and Melamed employ the vaccination example to define freeloader, explaining that “[t]he freeloader is the person who refuses to be inoculated against smallpox because, given the fact that almost everyone is inoculated, the risk of smallpox to him is less than the risk of harm from the inoculation.”¹⁰² This framing begins to define freeloaders as villains and may pave the way for the narrative to shift from the positive externalities of vaccination to the negative externalities of the freeloader’s “selfish” choice to refuse vaccination. Despite the typical textbook framing of vaccination as a positive externality, there may already be considerable public ambivalence about the most natural framing of the vaccination question.

These scenarios suggest that the way we frame mirrored externalities is not only malleable, but manipulable. Framing is the most persuasive when it seems natural, and effective framing must resonate with “common sense,”¹⁰³ but that does not preclude the potential for political operatives to manipulate framing to transform “what counts as common sense.”¹⁰⁴ Indeed in other contexts, political scientists have found framing to have powerful effects on public perceptions;¹⁰⁵ there is no reason to think that externality frames would prove any different in the hands of political operatives.

for immunization legislation, which some lawmakers and medical professionals argue would help the state prevent and respond to public health crises.”); Brian Krans, *Anti-Vaccination Movement Causes a Deadly Year in the U.S.*, HEALTHLINE NEWS (Dec. 3, 2013), <http://www.healthline.com/health-news/children-anti-vaccination-movement-leads-to-disease-outbreaks-120312> (“Even in 2013, the anti-vaccination movement continues to leave the door open to outbreaks of diseases that have been all but eradicated by modern medicine. These diseases include measles, polio, whooping cough, and more.”); Jennifer Steinhauer, *Public Health Risk Seen as Parents Reject Vaccines*, N.Y.TIMES, Mar. 21, 2008, <http://www.nytimes.com/2008/03/21/us/21vaccine.html?module=Search&mabReward=relbias%3As%2C%7B%22%22%3A%22RI%3A5%22%7D> (“In a highly unusual outbreak of measles [in San Diego] last month, 12 children fell ill; nine of them had not been inoculated against the virus because their parents objected, and the other three were too young to receive vaccines. . . . Children who are not vaccinated are unnecessarily susceptible to serious illnesses . . . but also present a danger to children who have had their shots . . . and to those children too young to receive certain vaccines.”).

102 Calabresi & Melamed, *supra* note 5, at 1095 n.13.

103 See, e.g., GEORGE LAKOFF, DON’T THINK OF AN ELEPHANT!: KNOW YOUR VALUES AND FRAME THE DEBATE, at xii–xv (2004) (arguing that “when you control the language, you control the message” and observing that “frames” are part of the “‘cognitive unconscious’—structures in our brains that we cannot consciously access, but know by their consequences: the way we reason and what counts as common sense”).

104 *Id.* at xv (arguing that “[r]eframing is changing the way the public sees the world” and “changing what counts as common sense[,]” and that “[b]ecause language activates frames, new language is required for new frames”).

105 See, e.g., JAMES M. ENELOW & MELVIN J. HINICH, THE SPATIAL THEORY OF VOTING, at xi–xiii (1984) (using spatial theory to consider voter uncertainty and the behavior of candidates to develop a theory of voting expectations); SHANTO IYENGAR & DONALD R. KINDER, NEWS THAT MATTERS 4 (1987) (noting how the television news “is a most powerful [framing] force” because it “prim[es] certain aspects of national life while ignoring others,” thus

Sometimes policy areas seem untouchable, and it might be that for some problems externality frames prove stubborn. In which case, a well-known strategy is to wait for (or at least capitalize on) crisis, which provides a different sort of opening for political opportunism.

Thus, to say that externality framing is influenced by baselines and the other factors we have identified is only half the story. The inverse is also true: the framing of externalities as positive or negative and the accompanying political narratives affect both the way that we allocate—and reallocate—rights and the way that we define—and redefine—the social and legal meaning of particular activities. This potential underscores the importance of understanding how different framing affects both individual processing of externalities and political and policy responses to issues.

Section A of this Part examines framing effects on individual cognition, exploring the effect framing has on the way we think about and process externalities. In this discussion, we lean heavily on prospect theory, Nobel Prize-winning work developed by Amos Tversky and Daniel Kahneman. Prospect theory highlights a number of elements of human psychology and cognition relevant to our topic. This theory suggests that we will give much greater weight and attention to negative externalities and consistently undervalue positive externalities due to loss aversion, the availability heuristic, and our bimodal response to catastrophic risk.

Section B considers how the framing of mirrored externalities affects politics. In particular, we consider (1) how the framing of an externality can signal the appropriateness of a particular policy solution and shape the terms of that debate; (2) how framing can bias our sense of what issues demand a policy response at all; (3) how the negative framing of externalities can pave the way for redefining underlying rights and entitlements; and (4) how positive framing creates the potential for hero narratives and even, perhaps, true heroes.

“set[ting] the terms by which political judgments are rendered and political choices made”); JOHN R. ZALLER, *THE NATURE AND ORIGINS OF MASS OPINION* 19 (1992) (arguing that those who care moderately about politics are more prone to political framing effects than those who care a lot about politics or those ambivalent about it); Dennis Chong & James N. Druckman, *Framing Theory*, 10 ANN. REV. POL. SCI. 103, 104 (2007) (framing is invoked by leaders to encourage citizens to think about an issue in particular ways); James N. Druckman, *Political Preference Formation: Competition, Deliberation, and the (Ir)relevance of Framing Effects*, 98 AM. POL. SCI. REV. 671, 671 (2004) (“[C]ontextual forces . . . and individual attributes . . . affect the success of framing.”); Thomas E. Nelson et al., *Media Framing of a Civil Liberties Conflict and Its Effect on Tolerance*, 91 AM. POL. SCI. REV. 567, 568 (1997) (finding that framing a KKK rally as a “free speech controversy” led to a more favorable opinion of the rally); Thomas E. Nelson & Zoe M. Oxley, *Issue Framing Effects on Belief Importance and Opinion*, 61 J. OF POL. 1040, 1041 (arguing that issue framing also affects how much importance individuals will attach to beliefs).

A. *Individual Cognitive Psychology*

In 2002, when Daniel Kahneman won the Nobel Prize in economics in recognition of his work with his deceased co-author, Amos Tversky, the prize committee summarized its motivation for providing him the award as follows: “for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty.”¹⁰⁶ While much of the research agenda of Kahneman and Tversky could easily fit under that rubric, the pinnacle of this work is arguably prospect theory, which is the greatest stride made thus far in behavioral economics’ effort to improve upon economics’ assumption that human behavior is rational and that people make decisions employing something akin to an expected utility model.¹⁰⁷ In contrast to traditional economics, behavioral economics is rooted in the notion that human capacity for rationality is limited.¹⁰⁸

106 *Daniel Kahneman – Facts*, NOBELPRIZE.ORG, www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2002/kahneman-facts.html (last visited Oct. 12, 2014) (internal quotation marks omitted).

107 At the time that Kahneman and Tversky wrote, and in many ways still today, expected utility theory was at the core of the economic model. See DENNIS C. MUELLER, *PUBLIC CHOICE III*, at 1–2 (2003) (“The basic behavioral postulate of public choice, as for economics, is that man is an egoistic, rational, utility maximizer.”); Mark Kelman, *Law and Behavioral Science: Conceptual Overviews*, 97 *NW. U. L. REV.* 1347, 1350 (2003) (referring to the idea that people are “rational, expected-utility maximizers” as the “ground-floor proposition” of economic thought). It is easy to make too much of these baseline economic assumptions built into much of economic modeling and turn the social science into a caricature of itself. See generally Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 *STAN. L. REV.* 1551–52 (1998) (arguing that behavioral economists—specifically Jolls, Sunstein, and Thaler—have overplayed criticisms of economic rationality by taking assumptions implicit in expected-utility theory to an extreme). But some of the major assumptions underlying expected utility theory are that human behavior is (1) guided by an internal cost-benefit calculator, (2) that sifts through relevant information about decisions relating to risks, (3) and motivates us to maximize individual utility, (4) though it recognizes that that there is generally a diminishing utility of wealth. For a detailed analysis of expected utility theory’s assumptions, see Lola L. Lopes, *Algebra and Process in the Modeling of Risky Choice*, in *DECISION MAKING FROM A COGNITIVE PERSPECTIVE* 177, 178–79 (Jerome Busemeyer et al. eds., 1995); see also W. KIP VISCUSI, *FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK* 119–23 (1992) (laying out assumptions undergirding expected utility theory); Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 *J. LEGAL STUD.* 747, 750–52 (1990) (same); Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 *YALE L.J.* 61, 63 (2002) (describing in layman’s terms how analysts might employ expected utility in approaching people who are risk adverse versus risk seeking).

108 This work on bounded rationality really came to the fore through the work of Nobel laureate Herbert Simon. Simon responded to expected utility theory by arguing that the most we can expect from human behavior is bounded rationality: “Since the organism . . . has neither the senses nor the wits to discover an ‘optimal’ path . . . we are concerned only with finding a choice mechanism that will lead it to pursue a ‘satisficing’ path, a path that will permit satisfaction at some specified level of all its needs.” HERBERT A. SIMON, *Rational Choice and the Structure of the Environment*, in *MODELS OF MAN: SOCIAL AND RATIONAL* 261,

Kahneman and Tversky laid the groundwork for prospect theory by studying heuristics—snap judgments that often lead us astray in predictable ways.¹⁰⁹ Once Kahneman and Tversky assembled enough heuristic scholarship, they began to see patterns and attempted to generalize that scholarship and many fundamental psychological observations into a macro model of human behavior they called “prospect theory.”¹¹⁰ This model of human behavior portrayed people as more irrational and nuanced than the traditional economic model would suggest. According to Kahneman:

Utility cannot be divorced from emotion, and emotions are triggered by changes. A theory of choice that completely ignores feelings such as the pain of losses and the regret of mistakes is not only descriptively unrealistic, it also leads to prescriptions that do not maximize the utility of outcomes as they are actually experienced¹¹¹

Below we explain three major features of prospect theory and discuss the ways these features of human psychology relate to the importance of the way we frame mirrored externalities.

The first insight of prospect theory is that people tend to evaluate their prospective options as a matter of relative losses and gains.¹¹² Implicit in focusing on losses and gains is a very important assessment: the baseline from

270–71 (1957). Acting less as a critic of economic theory and more as a coach, he sought to improve the economic model. He believed that to better enable the tools of economics to predict human behavior, the predictive model must “be related to [man’s] psychological properties as a perceiving, thinking, and learning animal.” HERBERT A. SIMON, *Rationality and Administrative Decision Making*, in *MODELS OF MAN: SOCIAL AND RATIONAL*, *supra*, at 196, 199.

109 See, e.g., Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 *SCI.* 1124, 1124 (1974) [hereinafter *Judgment Under Uncertainty*] (“[P]eople rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors.”); see also Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 *STAN. L. REV.* 1471, 1477 (1998) (“What is especially important in the work of Kahneman and Tversky is that it shows that shortcuts and rules of thumb are predictable.”). While the heuristics project provides a different view of human behavior than the one we find in the expected utility model, Kahneman and Tversky worked on their research agenda with the hope of improving economic modeling, particularly expected utility theory. Like Simon, these scholars do not dispute that people *ought* to maximize their utility; their point is that people often fail to do so and do so in predictable ways. Indeed, some important works in the bounded rationality scholarship deal explicitly with how to unite expected utility theory to the insights of bounded rationality scholarship or, as it is sometimes called, behavioral economics. See e.g., Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979) [hereinafter *Prospect Theory*]; Amos Tversky & Daniel Kahneman, *Advances in Prospect Theory: Cumulative Representation of Uncertainty*, 5 *J. RISK & UNCERTAINTY* 297 (1992).

110 See Kahneman & Tversky, *Prospect Theory*, *supra* note 109, at 263.

111 Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 *AM. ECON. REV.* 1449, 1457 (2003).

112 People “code” information by trying to break down information into more simplistic, digestible chunks. See Kahneman & Tversky, *Prospect Theory*, *supra* note 109, at 271–74.

which losses and gains are measured. We have already discussed the prominence of baselines in evaluating externalities.¹¹³ As discussed above, what we perceive as our baseline can change and even be manipulated, meaning that what we deem as the baseline (and why we do so) becomes a very important issue. Furthermore, prospect theory suggests that our judgments about the status quo are error prone and that we are unlikely to engage in a nuanced process when we make those assessments.¹¹⁴

A second insight from prospect theory is that we are likely to put too much emphasis on potential losses and undervalue the prospect of gains.¹¹⁵ Kahneman and Tversky refer to this emphasis on losses as loss aversion.¹¹⁶ It is worth noting that, in addition to many similar experimental findings by behavioral economists, traditional economists have documented loss aversion repeatedly as they have measured differences in our “willingness to pay” for some benefit and “willingness to accept” a similarly sized loss and found that people would pay much less to secure a benefit than they would accept to compensate for a loss.¹¹⁷

Prospect theory also suggests that because losses and gains are mirror images of each other and because we value losses much more than gains, the way that issues are framed can significantly color how people assess various options.¹¹⁸ Kahneman and Tversky found that when people are presented with logical equivalents that could be framed as either a loss or a gain, people were more willing to take risks to avoid losses than they were to pursue

Losses and gains are examples of such chunks, and probably the most important example for Kahneman and Tversky’s heuristic model of human behavior.

113 See *supra* Section II.A.

114 Complicating our perspective is the anchoring effect. Anchoring reflects our tendency to latch on to initial valuations (even if they are irrational) and hold on to them. See Robert J. Condlin, *Legal Bargaining Theory’s New “Prospecting” Agenda: It May Be Social Science, But Is It News?*, 10 PEPP. DISP. RESOL. L.J. 215, 246 (2010). Anchoring suggests that our baseline, even if correctly located initially, can become outdated as we fail to update as we encounter new information.

115 See Kahneman & Tversky, *Prospect Theory*, *supra* note 109, at 265–69; Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453, 454–55 (1981). Expected utility theory suggests that in facing decisions involving uncertainty we should treat losses and gains of identical sizes virtually the same. We say “virtually the same” rather than “the same,” because when it comes to gains we often face diminishing marginal utility, so even from a rational perspective, decreases in welfare are often more harmful than increases to welfare. See JEFFREY L. HARRISON, *LAW AND ECONOMICS: POSITIVE, NORMATIVE AND BEHAVIORAL PERSPECTIVES* 29 (2d ed. 2007) (discussing the law of diminishing marginal utility that stands for the proposition that the more of a positive thing is received, the less an additional unit of that thing will add to a person’s welfare).

116 See Kahneman & Tversky, *Prospect Theory*, *supra* note 109, at 278.

117 See R.G. CUMMINGS ET AL., *VALUING ENVIRONMENTAL GOODS* 129–33 (1986); Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 WASH. U. L.Q. 59, 66–69 (1993); Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 J. LEGAL STUD. 217, 223–30 (1993).

118 See Kahneman & Tversky, *Prospect Theory*, *supra* note 109, at 282; Kahneman & Tversky, *supra* note 115, at 453.

gains.¹¹⁹ Significantly, though Kahneman and Tversky presented people with logical equivalents, their subjects reversed their preferences regarding their risk tolerance when the frame switched from positive to negative.¹²⁰

The way Kahneman and Tversky framed the options caused respondents to systematically alter their preferences. Just as losses and gains are mirror images, negative and positive externalities—as we have previously demonstrated—are also mirror images of each other. The question is whether couching things as a negative externality rather than a positive externality could thus have similar effects. There is no reason to believe that framing externalities would be any different from Kahneman and Tversky's experiments. Losses are losses, whether from negative externalities or from some other source; gains are still gains regardless, as well.

Consistent with Kahneman and Tversky's theory and experiments, research has shown that changing the frame from willingness to pay for benefits to willingness to accept losses increases the mean and median values by factors from 1.4 and 16.5 times as large.¹²¹ Accordingly, the framing of mirrored externalities seems likely to have great influence on our valuation of positive and negative externalities. And importantly, changing framing is an essentially costless tool for altering valuations.

A third insight from prospect theory is that people tend to underappreciate probabilities associated with risk, particularly low probability, extreme outcome risk—often referred to as catastrophic risk. Specifically, we tend to have a bipolar response to catastrophic risks: we take them much too seriously, or not nearly seriously enough.¹²² It is as if, when we examine catastrophic risk, we examine it carelessly through a pair of binoculars—look through one end and things appear much bigger than reality; look through the other end and things appear much smaller. As examples of this insensitivity, people generally give too much weight to risks associated with the storage of nuclear waste,¹²³ but give insufficient weight to the risks associated with natural disasters like floods, hurricanes, and earthquakes.¹²⁴

119 See Kahneman & Tversky, *supra* note 115, at 453.

120 See *id.*

121 Mohammed Abdellaoui et al., *Loss Aversion Under Prospect Theory: A Parameter-Free Measurement*, 53 MGMT. SCI. 1659, 1662 (2007).

122 See VISCUSI, *supra* note 107, at 149; Jonathan Baron, *Cognitive Biases, Cognitive Limits, and Risk Communication*, 23 J. PUB. POL'Y & MARKETING 7, 9 (2004); Jolls et al., *supra* note 109, at 1518; Howard Kunreuther, *Risk Analysis and Risk Management in an Uncertain World*, 22 RISK ANALYSIS 655, 658 (2002); Gary H. McClelland et al., *Insurance for Low-Probability Hazards: A Bimodal Response to Unlikely Events*, 7 J. RISK & UNCERTAINTY 95, 95 (1993); Sunstein, *supra* note 107, at 61–63.

123 See Paul Slovic et al., *Perceived Risk, Trust, and the Politics of Nuclear Waste*, 254 SCI. 1603, 1603 (1991); Howard Kunreuther et al., *Public Attitudes Toward Siting a High-Level Nuclear Waste Repository in Nevada*, 10 RISK ANALYSIS 469, 469 (1990).

124 See HOWARD KUNREUTHER ET AL., *DISASTER INSURANCE PROTECTION: PUBLIC POLICY LESSONS* 235–43 (1978); Howard Kunreuther & Mark Pauly, *Neglecting Disaster: Why Don't People Insure Against Large Losses?*, 28 J. RISK & UNCERTAINTY 5, 5 (2004) (noting that people typically do not purchase insurance for “low-probability, high-loss events” even when insur-

Because there are many catastrophic risks that we tune out, we are prone to ignore the externalities associated with those risks. This increases our exposure to invisible externalities. Because we will not see the risk until it is upon us, we will often be forced into the position of having to focus on the negative reflection of mirrored externalities.

We also will tend to go too far to address other sorts of risks. This is particularly the case given the availability heuristic, which suggests that people judge risks based on the ease or difficulty of imagining or recalling the harm associated with a particular risk.¹²⁵ The heuristic can lead us to err because there are other factors, besides an event's probability, that contribute to it being memorable, such as recentness and vividness.¹²⁶ Indeed, "vivid images and concrete pictures of disaster can 'crowd out' other kinds of thoughts, including the crucial thought that the probability of disaster is very small."¹²⁷ Because vividness matters, people tend to overestimate worst-case scenarios for risks that evoke a strong emotional response.¹²⁸

It seems that negative externalities are more likely to evoke vivid emotional reactions than positive externalities. While positive and negative externalities are opposite sides of the same coin, negative externalities highlight the downside of actions, including some potentially vivid or disturbing downsides. Furthermore, negative externalities (pollution, instead of lack of pollution, and nuclear meltdown, instead of nuclear stability) paint more vivid pictures that may trigger the availability heuristic. As a thought experiment to make the point, consider the prospect of getting cancer versus the prospect of avoiding cancer. At least to us, the former evokes a stronger emotional response than the latter.

ance prices are favorable); Paul R. Kleindorfer & Howard Kunreuther, *Managing Catastrophic Risk*, 23 REG. 4, 2000, at 26, 28–29 (identifying possible reasons people often choose not to invest in risk mitigation measures in earthquake-prone areas); Paul Slovic et al., *Regulation of Risk: A Psychological Perspective*, in REGULATORY POLICY AND THE SOCIAL SCIENCES 241, 259–62 (Roger G. Noll ed., 1985) (discussing studies where people neglect catastrophic risks associated with flooding and failing to wear a seat belt). While on average, we may conclude that people generally put too much weight on particular catastrophic risks or too little on others, the data is even more convincing when examined at the individual level. See McClelland et al., *supra* note 122, at 113 (noting that with particular risks such as contaminated sites and nuclear power generation, people differ in their responses to such risks but regardless of their response perceive the risks in the extreme (i.e., the risk is very serious or not serious at all)).

125 See Tversky & Kahneman, *Judgment Under Uncertainty*, *supra* note 109, at 1124.

126 CASS R. SUNSTEIN, LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE 37 (2005); Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 463, 465–67 (Daniel Kahneman et al. eds., 1982); Sunstein, *supra* note 107, at 82.

127 Sunstein, *supra* note 107, at 82.

128 *Id.* at 67.

B. *Politics and Policy*

1. Externality Framing and “Matched” Solutions

The framing of an externality often strongly suggests a particular policy solution.¹²⁹ At the simplest level, when external effects are framed as negative externalities, the proposed solution is often a tax.¹³⁰ Framed as positive externalities, the proposed solution is typically a subsidy. More broadly, when confronting a negative externality, the textbook solution is typically a tax, fine, or perhaps a government prohibition on the activity.¹³¹ Proposed responses to positive externalities, on the other hand, typically include subsi-

129 Cf. Steinacker, *supra* note 7, at 471 (arguing that “the initial distribution of property rights . . . defines the situation as either a positive or externality case, which directs future government actions toward a particular set of policies (e.g., permits, taxes, or regulations for negative externalities; subsidies, insurance, or regulations for positive ones”). In Steinacker’s view, the matching of policy solutions to externalities is less about framing and more about initial rights allocations. Scholars often juxtapose the differing solutions for negative and positive externalities. See HARFORD, *supra* note 61, at 108 (“Once we realize the importance of positive externalities, the obvious solution is the mirror image of the policies we considered to deal with negative externalities: instead of an externality charge, an externality subsidy.”); James Salzman, *Teaching Policy Instrument Choice in Environmental Law: The Five P’s*, 23 DUKE ENVTL. L. & POL’Y F. 363, 372 (2013) (“Just as government can use penalties to capture negative externalities and make bad activities more expensive, it can use payments to capture positive externalities and make good activities less expensive.”); ORG. FOR ECON. CO-OPERATION & DEV., *SUBSIDIES AND ENVIRONMENT: EXPLORING THE LINKAGES* 195 (1996) (“Economic theory provides, in the abstract, a solution to the problem of externalities: as long as a private activity creates additional costs through negative externalities, it should be made to pay for them through the imposition of an adequate fee (Pigouvian tax). Conversely, if a private activity creates additional benefits through positive externalities, it should be remunerated for them through an optimal subsidy.”). Of course, this matching of particular solutions with negative or positive externalities, respectively, is far from arbitrary. If negative externalities are envisioned, for instance, as deviations below social norms or conflicts with existing legal entitlements, they are likely to be punished. Conversely, if positive externalities are envisioned as going above and beyond what social norms call for, they are likely to be rewarded. We thank Carol Rose for her helpful insights on this matter.

130 See, e.g., PIGOU, *supra* note 2, at 29–30.

131 See MANKIW, *supra* note 26, at 226 (“Pollution is a negative externality that can be remedied with regulations or with corrective taxes on polluting activities.”); MCEACHERN, *supra* note 84, at 81 (“Restrictions aimed at maintaining water quality limit what can be dumped into the nation’s rivers, lakes, and oceans. Noise restrictions aim at maintaining peace and quiet. Local zoning laws limit where firms can locate and in what condition homes must be maintained. In short, government restrictions try to reduce negative externalities.”); Laxminarayan & Brown, *supra* note 35, at 25 (discussing antibiotic use as imposing negative externalities on future users and thus suggesting that “[o]ne potential economic solution to the problem of divergence between the rate of antibiotic use in a decentralized situation and the optimal rate can be corrected by imposing an optimal tax on antibiotics”); *id.* (suggesting that an additional solution to antibiotic resistance beyond taxes would include centralized control over which antibiotics are made available to doctors).

dies, public education, information disclosure, or government funding or provision of a particular good.¹³²

Although these differing policy prescriptions may, in some instances, produce similar efficiencies,¹³³ the distributional effects of these various mechanisms can diverge dramatically. When we internalize a so-called positive externality by, for example, subsidizing production of a particular good, we increase the surplus of the producer to match the societal benefit of that good. That is, in order to ensure that no societal surplus is left on the table, we transfer that surplus—in the form of the subsidy—to the producer, on the theory that it is better that someone (the producer) have that surplus than for society to incur the deadweight loss of no one capturing the surplus. If, instead, we choose to impose a tax on production of that good, we require the producer to reimburse society for the societal costs of production. Thus, the choice between framing an externality as negative or positive can alter the perceived fit of potential solutions, which, in turn, can lead to quite different distributional outcomes.¹³⁴

132 See HARFORD, *supra* note 61, at 108 (“Once we realize the importance of positive externalities, the obvious solution is the mirror image of the policies we considered to deal with negative externalities: instead of an externality charge, an externality subsidy. Vaccinations, for example, are often subsidized by governments or by aid agencies; scientific research, too, usually gets a big dose of government funding.”); MANKIW, *supra* note 25, at 199 (noting that the appropriate government solution to the market failure of positive externalities is a subsidy, which is “exactly the opposite to the case of negative externalities,” which require taxes “to bring the market equilibrium closer to the social optimum”); *id.* (observing that positive externalities require subsidies rather than taxes and thus “[e]ducation is heavily subsidized through public schools and government scholarships”); MCEACHERN, *supra* note 84, at 81 (“When there are positive externalities, governments aim to increase the level of production beyond that which would be chosen privately. For example, governments try to increase the level of education by providing free primary and secondary education, by requiring students to stay in school until they reach 16 years of age, by subsidizing public higher education, and by offering tax breaks for some education expenditures.”); ULBRICH, *supra* note 13, at 113 (“Among the methods of addressing positive externalities are producing the good or service in the public sector, paying with taxes, providing public subsidies to private production, or mandating the consumption of the good or service.”); *id.* at 120 (“Yet another approach to encouraging the consumption of goods with positive externalities, such as education, is to attempt to stimulate a stronger preference for those goods through educational and informational methods.”); Giuseppe Dari-Mattiacci, *Negative Liability*, 38 J. LEGAL STUD. 21, 23 (2009) (“In general, positive-externality problems are commonly regarded as a justification for public goods provision, subsidies, or regulation rather than for liability.”); ORG. FOR ECON. CO-OPERATION & DEV., *supra* note 128, at 195 (“Conversely, if a private activity creates additional benefits through positive externalities, it should be remunerated for them through an optimal subsidy.”).

133 This might be true if, for instance, we are choosing between a tax and a subsidy of comparable amounts.

134 A related possibility is that instead of the externality framing driving the proposed solutions, the perceived desirability of a particular solution might drive the way that the externality is framed. Thus, if a subsidy seems a more appealing (or effective) remedy to a particular problem than a fine, the issue might be described in terms of positive, rather than negative, externalities. This possibility admits both the potential influence of practi-

Of course, just because a particular framing suggests a particular, “matched” solution does not mean that solution will be adopted. While the matched solution may seem preordained, its adoption is far from a foregone conclusion. Nevertheless, the first solution the framing suggests—the one that seems most natural given the framing choice—provides a starting point for evaluating the appropriateness of alternative policy prescriptions. That solution may “anchor” subsequent debates about appropriate policy responses, and behavioral economics research suggests that people tend to give undue weight to this initial anchor when making decisions.¹³⁵ Consequently, initial framing choices may have at least some staying power to shape the terms and outcomes of subsequent policy debates.

Real life, however, is undoubtedly more complex than either economic theory or controlled experiments. Any given problem might elicit a range of different solutions—some that “match” a positive externality framing and some that “match” a negative externality framing. This might occur when both framings feature prominently in the public discourse about a particular issue. In addition, this scenario may occur when the dominant characterization of an externality changes over time and different policy responses accrete over time. It may, of course, also occur for a variety of reasons that have little to do with externality framing. For instance, taxing rather than subsidizing “too big to fail” banks was hardly a workable solution to looming financial collapse.¹³⁶

Nonetheless, it is interesting to consider how well, for example, government solutions for education match the predominant externality framing. Government’s main response to primary and secondary-level education is

cal, historical, and normative factors in shaping baseline assumptions about the appropriateness of particular remedies, as well as the potential for political actors to affirmatively manipulate externality characterizations in order to achieve particular political aims. This latter potential is explored more fully in Part III.

135 The “anchoring effect” was first identified by Daniel Kahneman and Amos Tversky. See Tversky & Kahneman, *Judgment Under Uncertainty*, *supra* note 109, at 1124–30. Both their research and later research have hypothesized a variety of mechanisms by which the anchor exerts its influence on subsequent decision-making. See Adrian Furnham & Hua Chu Boo, *A Literature Review of the Anchoring Effect*, 40 J. SOCIO-ECON. 35, 37 (2011) (summarizing different possible anchoring mechanisms). The experimental evidence for anchoring has generally considered “numerical” anchors, not the kind of policy solution anchors that would be at issue here, so further experimental research would be necessary to test this hypothesis. See also *supra* note 114 and accompanying text.

136 Similarly, subsidies may be used in a variety of contexts where affordability and distributional concerns exist. For instance, subsidized rates for the National Flood Insurance Program (NFIP) are often advocated on the ground that property owners will otherwise be unable to purchase insurance at all. See, e.g., Carolyn Kousky & Howard Kunreuther, *Addressing Affordability in the National Flood Insurance Program 2* (Risk Mgmt. & Decision Processes Ctr., Working Paper No. 2013-12, 2013), available at http://opim.wharton.upenn.edu/risk/library/WP2013-12_Affordability-NFIP_CK-HK.pdf (arguing that concerns about affordability necessitate subsidizing some NFIP policyholders, but that this should be accomplished through a “means-tested voucher program” rather than subsidized insurance rates).

one that aligns with the positive externality framing: government provision of the good (free, public education). The same can also be said of post-secondary education, as student loans have historically allowed students to attend colleges at subsidized rates, and many states provide funding for public universities that then offer subsidized tuition rates to students. At first blush, compulsory school attendance laws for children might seem like a page out of the negative-externality playbook (forbidding parents from keeping children out of school), but they are equally consistent with a standard, if less commonly employed, positive externality solution: government purchase mandates to increase consumption of a good beyond the level that private demand alone would dictate.¹³⁷

It is, of course, quite possible that remedies for positive and negative externalities could exist simultaneously. If a school district fines parents for violating compulsory education laws, then the government is both subsidizing school attendance and penalizing non-attendance. Similarly, the same jurisdiction might impose a tax on landowners who destroy wetlands on their property and offer a subsidy to landowners who choose to preserve wetlands on their property.

However, our framing of externalities can create tunnel vision that focuses our attention on only one manifestation of the problem, and thus on only one set of solutions. Interestingly, even scholars who at least implicitly recognize the potential for mirror image framing of externalities and the need to bring the standard solutions for both positive and negative externalities to bear on a given problem sometimes appear to uncritically accept the need to match the externality framing with its preferred solution.

For example, Eric Kades, in a careful examination of policy solutions for the externalities of antibiotic use, describes antibiotic use as generating negative externalities that should be dealt with by imposing a Pigovian tax.¹³⁸ In the same article, he also describes the use of diagnostic tests that can decrease unnecessary antibiotic use as generating positive externalities that

137 See, e.g., MCEACHERN, *supra* note 84, at 81 (“When there are positive externalities, governments aim to increase the level of production beyond that which would be chosen privately. For example, governments try to increase the level of education by providing free primary and secondary education, by requiring students to stay in school until they reach 16 years of age, by subsidizing public higher education, and by offering tax breaks for some education expenditures.”). The willingness to compel children (but not adults) to attend school may relate to our underlying intuitions about the propriety (and constitutionality) of intruding on the life choices of competent adults, concerns that are ameliorated with children, over whom the state can arguably exercise more of a *parens patriae* power. Moreover, state compulsion of school attendance by children might be seen as a response to a different externality: parenting choices that affect a child’s long-term prospects. The same kind of externality might be one motivation for compulsory childhood vaccination laws (where parenting choices can affect the child’s long-term health). Compulsory education laws might also go hand in hand with efforts to prevent exploitation of child labor.

138 See generally Kades, *supra* note 36, at 638–43.

should be dealt with by subsidizing test use.¹³⁹ Although he notes that the problem of “*less than* optimal use of tests for antibiotic efficacy” is, in some respects, “simply the inverse of the overuse of antibiotics in the absence of a Pigovian tax,”¹⁴⁰ he does not consider whether we should pay patients, more generally, not to use antibiotics (subsidize all non-use) or tax or fine individuals who do not utilize available diagnostic tests before taking antibiotics.¹⁴¹ In some sense, then, Kades’s menu of potential solutions appears to be constrained by his framing of the particular externalities and the solutions that framing suggests.

One approach to public decision-making that may counter some of the matched-solution-suggesting effects of externality framing is scenario-based planning, which may help bracket a problem by exposing both the positive effects of acting and the negative effects of declining to act (or vice versa). Scenario planning typically tests different future scenarios against a no-action baseline, so that both action and no-action alternatives are on the table. So, for example, a baseline scenario might demonstrate the negative externalities of failing to build a public transportation network and an accompanying scenario might demonstrate the positive externalities of that infrastructure investment. Such an approach may thus call attention to the mirrored externalities inherent in any particular decision, which may encourage consideration of the full set of potential solutions. Often, however, this kind of decision-making focuses on public infrastructure choices that generate externalities, rather than on individual actions that generate externalities.¹⁴²

139 *Id.* at 638–42.

140 *Id.* at 641.

141 Perhaps Kades would argue that he is effectively proposing to subsidize all appropriate non-use (as the tests are the most effective way to distinguish when use is justified), and that he is effectively proposing to tax those who do not use the tests through the more general Pigovian tax on antibiotics. Despite his description of the “Pigovian subsidy” for testing as the “mirror image of the Pigovian tax on antibiotics,” *id.* at 639, the subsidy he proposes is not the exact mirror image of the tax, as the tax is for all antibiotic use (whether or not a test has revealed that the use is appropriate) and the subsidy is only for testing, not for all decisions to refrain from using antibiotics (such as a decision not to use antibiotics to treat a minor, non-threatening bacterial infection). Perhaps this divergence can be explained on a number of different grounds, but at least one explanation is that Kades is trapped by his own framing of the externalities; he does not explicitly consider whether all decisions to forego antibiotics generate positive externalities and thus should be subsidized, or whether the decision to forego testing creates negative externalities that thus should be taxed. Kades does suggest that a subsidy to indigent patients to help them pay the Pigovian tax on antibiotics would be appropriate to address distributional “equity concern[s].” *Id.* at 665.

142 To be sure, we can easily identify situations where scenario-based decision-making implicates private actions as well. For example, many states have adopted laws that require decisions about building private infrastructure to undergo an alternative analysis when these decisions impact the environment. For example, in California, most projects that require a state or local agency to issue a discretionary permit (like conditional use zoning permits) must comply with requirements relating to analysis of impacts and alternatives, public disclosure, and serious consideration of community input. These requirements are

2. The Bias Toward “Remedying” Negative Externalities

The framing of externalities has the potential to influence not only which solutions we propose for a particular problem but also whether we decide that a problem needs solving at all. Specifically, we are more inclined to force internalization of negative externalities than to ensure internalization of positive externalities.¹⁴³ Indeed, even a cursory examination of the list of common remedies for positive externalities suggests that we feel less need to take a heavy hand in correcting positive externalities. While the policy prescriptions for both negative and positive externalities include equivalent “‘hard’ economic incentives”¹⁴⁴—taxes and subsidies, respectively—the positive externality solutions list often seems to veer quite quickly into softer, more voluntary, and arguably less effective tacks such as persuasion and education.¹⁴⁵

Moreover, when scholars advocate internalizing externalities, they are often focused on internalizing negative externalities—social costs.¹⁴⁶ Corpus linguistics analysis also suggests that we talk about internalization of costs significantly more than we discuss internalization of benefits. The Google Ngram for the trigrams “internalize negative externalities” and “internalize positive externalities” shows that, after the mid-1990s, the two phrases diverge considerably: the frequency of “internalize negative externalities” increases

found in the California Environmental Quality Act. CAL. PUB. RES. CODE §§ 21000–21006 (West 2014). Some other states have similar statutes. See, e.g., Massachusetts Environmental Policy Act, MASS. GEN. LAWS ANN. ch. 30, §§ 61–62 (West 2014); Washington State Environmental Policy Act, WASH. REV. CODE ANN. § 43.21C.030 (West 2014).

143 See Ariel Porat, *Private Production of Public Goods: Liability for Unrequested Benefits*, 108 MICH. L. REV. 189, 189 (2009) (“Ideally, from an economic perspective, both the negative and positive externalities should be internalized by those who produce them, for with full internalization, injurers and benefactors alike would behave efficiently. In actuality, however, whereas the law does require that injurers bear the harms they create (or wrongfully create), benefactors are seldom entitled to recover for benefits they voluntarily confer on recipients without the latter’s consent . . .”).

144 Kades, *supra* note 36, at 638.

145 Cf. *id.* (arguing that in the context of antibiotic overuse, “‘hard’ economic incentives, such as taxes, subsidies, and changes in patent rights, are much more effective measures than legislative fiat, jawboning, and education”). Of course, softer solutions, such as public education, are sometimes described as solutions for negative externalities as well (for example, to discourage consumption of a good that creates negative externalities). See, e.g., ULBRICH, *supra* note 13, at 120 (“Yet another approach to encouraging the consumption of goods with positive externalities, such as education, is to attempt to stimulate a stronger preference for those goods through educational and informational methods. Likewise, it is possible to discourage the consumption of goods with negative externalities—alcohol, cigarettes, tobacco—through advertising and educational campaigns.”).

146 See, e.g., ULBRICH, *supra* note 13, at 116 (discussing “internalizing externalities” as the internalizing of social costs). But see MANKIW, *supra* note 26, at 201 (observing that “[t]o remedy the problem [of externalities], government can internalize the externality by taxing goods that have negative externalities and subsidizing goods that have positive externalities”).

quite dramatically while “internalize positive externalities” declines.¹⁴⁷ Today, “internalize negative externalities” is used about three times as frequently as “internalize positive externalities.”¹⁴⁸

A query in COCA for collocates associated with “internalize” likewise demonstrates that we typically speak of internalizing negative rather than positive externalities. Among the psychological associations of the word, there are also telling economic associations, specifically with the words “costs” and “externalities.” “Internalize” collocates with “costs” fifty-seven times and with “externalities” twenty-two times, which confirms that the most common framing of “internalize” is negative. A line-by-line context analysis of the twenty-two instances that “internalize” collocates with “externalities” further supports this conclusion, as context demonstrates that nineteen of those instances refer to internalizing negative externalities.¹⁴⁹

Beyond this corpus linguistics evidence, our common law system also demonstrates a bias toward internalizing negative but not positive externalities.¹⁵⁰ The common law is largely geared toward developing mechanisms for forcing internalization of negative externalities rather than creating mechanisms for facilitating capture of positive externalities. The property law doctrine of nuisance forces internalization of particularly egregious negative externalities,¹⁵¹ but provides no comparable doctrine for recoupment of even the most beneficial positive externalities. In *Koontz v. St. Johns River Water Management District*,¹⁵² the Supreme Court approved this use of property law, observing that “[i]nsisting that landowners internalize the negative externalities of their conduct is a hallmark of responsible land-use policy, and we have long sustained such regulations against constitutional attack.”¹⁵³ The Supreme Court has never identified a comparable state land use policy of internalizing positive externalities.¹⁵⁴ Tort law, likewise, provides a mech-

147 GOOGLE BOOKS N-GRAM VIEWER, https://books.google.com/ngrams/graph?content=internalize+negative+externalities%2Cinternalize+positive+externalities&year_start=1965&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2Cinternalize%20negative%20externalities%3B%2Cc0%3B.t1%3B%2Cinternalize%20positive%20externalities%3B%2Cc0 (last visited Oct. 12, 2014).

148 *Id.*

149 Even without a line-by-line analysis of the context, these results make sense. Since “externalities” generally refer to “negative externalities,” it intuitively follows that “internalize externalities” really means the more precise “internalize negative externalities.”

150 See, e.g., Parchomovosky & Siegelman, *supra* note 1, at 228 (“The contrast between the legal system’s extensive mechanisms for dealing with negative externalities and its meager resources for coping with positive spillovers is striking.”).

151 See, e.g., *id.* at 225–26 (describing nuisance law as “a corrective mechanism that forces each owner to take account of the negative effects of her actions on other owners and engage only in those activities that do not unduly interfere with the interests of proximate property owners”).

152 133 S. Ct. 2586 (2013).

153 *Id.* at 2595.

154 Of course, this may well be because the Supreme Court doesn’t opine on general issues of state land use very often and because state actions imposing costs, rather than those conferring benefits, are generally those that raise constitutional concerns and spur

anism for forcing those who cause harm to others to internalize those costs under certain circumstances, but it provides no comparable mechanism for a positive-externality generator to force third parties to compensate it for the benefits it confers. Similarly, in contract law, while direct conferral of benefits is sometimes compensated under the quasi-contract doctrine of unjust enrichment, its scope is limited and narrow.¹⁵⁵

Of course, there are a wide variety of potential explanations for this asymmetry, including the difficulty of valuing unsolicited benefits and the potential unfairness of requiring people to reimburse others for benefits they neither solicited nor desired.¹⁵⁶ Nonetheless, our common law experience likely perpetuates a bias toward remedying negative externalities. It both confirms and reinforces the view that we should focus our efforts and resources on solving problems framed as negative externalities; consequently, we are less used to thinking about issues framed as creating positive externalities as serious problems that need to be solved. In short, a negative externality is often viewed as a call to action, while a positive externality is merely an occasion for celebration.

One explanation for this bias toward “solving” negative externalities may be loss aversion writ large.¹⁵⁷ As the prior subsection demonstrates, loss aversion causes individuals to overvalue losses as compared to foregone gains, and those cumulative individual errors can affect the demand for legislation. Legislation addressing issues with a predominantly negative externality framing may thus be oversupplied relative to legislation addressing issues with a predominantly positive externality framing.

The potential for “availability cascades,” a term coined by Timur Kuran and Cass Sunstein,¹⁵⁸ is also higher when the negative framing is emphasized. An availability cascade is “a self-reinforcing process of collective belief formation by which an expressed perception triggers a chain reaction that gives the perception increasing plausibility through its rising availability in public discourse.”¹⁵⁹ These cascades compound and propagate the kind of “availability errors” discussed in Section III.A. Typically these cascades are most successful when they are focused on a narrative rife with negative exter-

constitutional takings challenges. Nonetheless, we are not aware of any general land use principle that facilitates internalization of positive externalities.

155 See, e.g., Parchomovosky & Siegelman, *supra* note 1, at 228 (“[U]njust enrichment entitles an aggrieved party to restitution only in cases of ill-gotten gains, when the benefactor did not intend to confer the benefit on the recipient.”).

156 See *id.* at 230–36 (cataloguing and critiquing rationales for the common law’s focus on forcing internalization of negative, but not positive, externalities).

157 Steinacker, *supra* note 7, at 474 (“The initial assignment of rights sets [the] baseline and determines how salient any future adjustments toward the optimal level will be to the general public. Negative externalities are more likely to make it onto the public agenda.”); *id.* at 461 (“Loss aversion suggests that a situation structured so that change produces a negative externality is more likely to be perceived as a problem than if the change produces a positive externality.”).

158 Kuran & Sunstein, *supra* note 9, at 683.

159 *Id.*

nalities. Most of Kuran and Sunstein's examples of availability cascades, including Love Canal, Alar in apples, airplane crashes, asbestos, and Agent Orange, feature nightmare scenarios of negative externalities.¹⁶⁰ Emphasizing the negative mirrored externalities, then, creates more opportunities for availability cascades and more resulting demand for legislative response. One could imagine that the particular salience of negative externalities is confined mostly to the litigation context, particularly suits based on the common law, which is—for the many reasons described—focused on remedying negative externalities. It might well be true that legislation is more likely to focus on positive externalities than litigation, but phenomena like availability cascades suggest that, even in the legislative context, discussion of negative externalities may be more likely to spur remedial action.

3. Externality Framing and Rights Redefinition

As the prior subsection describes, we often think of negative externalities as a call to action and positive externalities as an occasion for celebration. Emphasizing negative externalities can, as previously described, push toward solutions like taxes and prohibitions and galvanize political action to implement those policy solutions. One of the important ways in which focusing on negative externalities galvanizes this kind of action may be by delegitimizing existing legal and moral entitlements to engage in a particular activity. This argument suggests that there is a symbiotic, mutually constitutive relationship between externality framing and existing entitlements: existing entitlements shape the most natural externality framing, and externality framing, in turn, shapes our sense of appropriate entitlements.

Understanding the forces that shape our sense of the social and legal meaning of particular acts is an important but complicated endeavor. In the context of smoking, for instance, Richard Posner has noted his agreement with Larry Lessig that “behavior can be altered by changing various margins, including the meaning of particular acts,” such as whether smoking “mean[s] being a cool cat” or instead “mean[s] being a dirty addict,” but he then argues that the truly “interesting question is how such valences change.”¹⁶¹ The bidirectional, symbiotic relationship between externality framing and

160 *Id.* at 681–92, 703; *see also id.* at 688–89 (“Among the diverse social transformations that exhibit striking examples of availability cascades are the rise and decline of McCarthyism; the struggle for black civil rights; the student rebellions of the 1960s; the spread of affirmative action and the recent explosion of public opposition to it; the rise of feminism, the anti-tax movement, and the religious right; ongoing campaigns against pornography, hate speech, smoking, health maintenance organizations, and the burning of black churches; the spread of ethnic and religious separatism across the world; the persistence and sudden fall of communism; the global turn toward market-friendly government policies; campaigns for safe sex; the enforcement of Megan’s Law, designed to inform a community when a convicted sex offender moves in; and finally, the emergence of the Federalist Society at American law schools.”).

161 Richard A. Posner, *Social Norms, Social Meaning, and Economic Analysis of Law: A Comment*, 27 J. LEGAL STUD. 553, 563 (1998).

underlying legal and moral entitlements suggests that one way to alter the social and legal meaning of particular activities is by changing the way that associated externalities are framed in public discourse.

One of the primary ways that anti-smoking campaigns successfully decreased the social acceptability of smoking and created momentum for smoking bans in public places was by focusing on the negative externalities of smoking, including secondhand smoke. As one scholar has explained:

In the smoking context, it is in campaigns that emphasise the harms of smoking on others that the moral overtones are felt most prominently. Such harms include the health effects of environmental tobacco smoke but also the emotional effects of a smoker's tobacco-related disability or premature death on their children. For example, a recent anti-smoking campaign in Australia shows a young boy entering a busy train station with what appears to be his mother, who subsequently disappears from view. Much of the spot depicts the child becoming increasingly distressed, ending with the voice-over, "If this is how your child feels after losing you for a minute, just imagine if they lost you for life." Such campaigns help denormalise smoking by portraying its harmful effects on others.¹⁶²

Although it is, of course, impossible to tell a definitive story of cause and effect, antismoking campaigns emphasizing the negative externalities of smoking appear to have helped "denormalize" smoking,¹⁶³ shifting the baseline assumption from smoking as a normal, socially acceptable activity (even a right) to an antisocial activity that can be regulated and banished from the public sphere. Studies by the tobacco industry itself demonstrated that "[d]uring the 1990s, eroding social acceptability of smoking emerged as a major threat [to the tobacco industry], largely from increasing awareness of the dangers of secondhand smoke among nonsmokers and smokers."¹⁶⁴

162 Kristin Voigt, "If You Smoke, You Stink." *Denormalisation Strategies for the Improvement of Health-Related Behaviours: The Case of Tobacco*, in *ETHICS IN PUBLIC HEALTH AND HEALTH POLICY* 52 (Daniel Strech et al. eds., 2013).

163 *Id.* at 48 (noting that "denormalisation" includes "'all the programs and actions undertaken to reinforce the fact that tobacco use is not (and should not be) a mainstream or normal activity in our society . . . urging current smokers to quit, and thereby conform with the smoke-free majority'" and that the California Department of Health Services "describes . . . 'social norm change' as an attempt 'to indirectly influence current and potential future tobacco users by creating a social milieu and legal climate in which tobacco becomes less desirable, less acceptable, and less accessible'" (citations omitted)).

164 Pamela M. Ling & Stanton A. Glantz, *Using Tobacco-Industry Marketing Research to Design More Effective Tobacco-Control Campaigns*, 287 J. AM. MED. ASS'N 2983, 2983 (2002); see also *id.* at 2986 ("Tobacco companies closely monitored the social acceptability of smoking. Philip Morris conducted segmentation studies based on attitudes about smoking issues (smoking and health, the dangers of secondhand smoke, social pressures against smoking, or opinions about government regulation) among both smokers and nonsmokers in the 1960s and in 1988, 1990, 1991, and 1994. They consistently showed that about half of smokers felt uncomfortable about smoking, largely because of price and smoking's effect on other people." (internal citations omitted)); *id.* at 2987 (explaining that in the 1990s, studies by R.J. Reynolds found that "[m]ore smokers were concerned about the effects of

Scholarly analysis of antismoking campaigns found that the most effective campaign messages for persuading all audiences were emphasizing secondhand smoke and tobacco industry “manipulation” of customers. The studies also found that secondhand smoke advertisements were particularly effective in denormalizing smoking.¹⁶⁵ Campaigns emphasizing secondhand smoke externalities seem to have been aimed specifically at altering the baseline assumption that smokers should have the right to smoke in public, and even in their own homes. In particular, this “strategy” was designed “[t]o counter the industry’s use of patriotic concepts like liberty and freedom to choose whether to smoke” by demonstrating “that many people involuntarily breathe secondhand smoke at work and in public places and that children breathe their parents’ smoke.”¹⁶⁶

This same strategy of emphasizing secondhand smoke externalities likewise featured prominently in political efforts to regulate smoking in public places. Advocating for a city-wide ban on smoking in public places—one of the first such bans in the country—New York City Mayor Michael Bloomberg framed the issue before the City Council in terms of negative externalities, asking: “Does your desire to smoke anywhere at any time trump the right of others to breathe clean air in the workplace?”¹⁶⁷ These efforts were the natural culmination of the redefinition of both the social meaning and legal entitlements surrounding smoking.¹⁶⁸ And indoor smoking bans, in turn,

secondhand smoke on others” and that R.J. Reynolds identified “a new [market] segment, Social Guilt, which accounted for 24% of the market”).

165 See Lisa K. Goldman & Stanton A. Glantz, *Evaluation of Antismoking Advertising Campaigns*, 279 J. AM. MED. ASS’N 772, 776 (1998) (“Industry manipulation and secondhand smoke are the most effective strategies for reaching all audiences. . . . Secondhand smoke advertisements also denormalize smoking and heighten interest about smoking among both smokers and nonsmokers.”). The focus on tobacco industry manipulation might be useful in creating a compelling villain.

166 *Id.* at 775. Additionally,

[a]mong youth, secondhand smoke messages can awaken a “sense of injustice for the little guy.” “Living Room,” a California advertisement, portrays a brother and his much younger sister watching television. As the brother smokes, the sister begins coughing and smoke comes out of her mouth. This advertisement was effective among both adults and youth because it showed the child as a helpless victim and made people aware of the effects of their smoking on others.”

Id. (footnotes omitted).

167 David B. Caruso, *Bloomberg Public Health Legacy Lauded in NYC*, HUFFINGTON POST (Dec. 12, 2013), http://www.huffingtonpost.com/2013/12/22/bloomberg-public-health_n_4489289.html (internal quotation marks omitted).

168 Emphasizing negative externalities to argue for a particular definition (or redefinition) of existing rights may be a litigation tactic as well as a political tactic. See, e.g., *Koontz v. St. Johns River Water Mgmt. Dist.*, 133 S. Ct. 2586, 2595 (2013) (noting the government’s argument opposing a *Nollan/Dolan* takings claim that wetlands destruction generates negative externalities and imposes costs on the surrounding community).

further denormalize smoking by “implicitly defining smoking as an antisocial act.”¹⁶⁹

The use of secondhand smoke negative externalities to frame the discussion of smoking and ultimately to denormalize smoking and limit the right to smoke in public places suggests that there is a symbiotic relationship between externality framing and underlying legal and moral entitlements, with each influencing the other. Accordingly, the choice to emphasize the negative half of the mirrored externality pair can have important consequences for our sense of the legal and moral entitlement to engage in a particular activity.

Perhaps the “broccoli horrible” of the ACA debate was a bit prescient: obesity may be the next target of a negative-externality campaign aimed at redefining the social and legal meaning of food choices. In a recent article in the *Harvard Political Review*, Andrew Seo praised former New York Mayor

169 Voigt, *supra* note 162, at 49 (“[C]lean indoor air legislation reduces smoking because it undercuts the social support network for smoking by implicitly defining smoking as an antisocial act.” (emphasis omitted) (quoting Stanton A. Glantz, *Achieving a Smokefree Society*, 76 CIRCULATION 746 (1987))). A positive externality narrative, on the other hand, may flow from a sense that a particular entity has a right to engage in a particular activity—such that its decision to refrain is a “gift” to the community. In turn, that positive framing may encourage subsidies, which reinforce the view that the actor is entitled to engage in that activity and must be paid not to do so. Cf. MARK HIRSCHHEY, MANAGERIAL ECONOMICS 424 (2008) (observing that an “important distinction” between taxes and subsidies is that “[s]ubsidies imply that firms have a right to pollute because society pays to reduce pollution,” while “a system of pollution taxes asserts society’s right to a clean environment” and that “[f]irms must reimburse society for the damage caused by their pollution”).

Even in those contexts in which the positive framing of a mirrored externality seems most resilient, however, there may nonetheless be some room at the margins for the reframing of externalities and thus the redefinition of underlying rights. Our earlier discussion of patent externalities suggested that it is much easier to speak of the positive externalities of inventions than to speak of the negative externalities of a failure to invent. Even in this context, however, there may be room at the edges for recharacterization. At least in the context of underutilized patents—those that are neither used by the patent-holder nor licensed by the patent-holder to others—most countries aside from the United States have concluded that the public has a sufficiently strong interest in the fruits of an inventor’s creativity to provide for compulsory licensing of otherwise unused patents. See Joseph A. Yosick, *Compulsory Patent Licensing for Efficient Use of Inventions*, 2001 U. ILL. L. REV. 1275, 1276. Such compulsory licensing strikes at the heart of the idea of a patent as the ability to exclude, and yet it is commonplace in most intellectual property regimes. See *id.* While these regimes do not go as far as recognizing a (difficult to conceptualize and likely impossible to enforce) collective public property right in “ideas that haven’t yet been invented,” Lemley, *supra* note 37, at 1098 n.4, they do acknowledge some limited public right to enjoy the benefits of ideas that have been invented but not yet brought to fruition by the inventor or a licensee of the inventor’s choosing. One could certainly imagine a political campaign for compulsory U.S. licensing emphasizing the negative externalities of non-use of valuable patents and demonizing so-called “patent trolls” for creating drag on innovation and invention. Such a campaign might well make inroads in the U.S. despite its traditional resistance to compulsory licensing.

Michael Bloomberg's ban on selling soda in containers larger than sixteen ounces. He argued:

The plan's opponents, however, neglect the incontrovertible fact that obesity has serious negative externalities and costs. This is our self-inflicted 21st century public health crisis, much like smoking was in the last century. The government has spent decades targeting smoking, and as a result the number of adults who smoke is declining. Mayor Bloomberg isn't touting his plan as a panacea. Rather, the soda ban represents the first step in the right direction towards addressing this crisis.¹⁷⁰

Consider a third example, this time dealing with exactions—deals that landowners make with governmental entities (most often local governments exercising land use power) when seeking permits, in which the government relaxes some regulation (like a zoning ordinance) in consideration for some other concession by a permit applicant (like a negative easement). The limits of a government's power to exact a concession from a landowner—the fine line between striking a deal and “taking” private property—are laid out in two U.S. Supreme Court cases. The first of these, *Nollan v. California Coastal Commission*,¹⁷¹ mandates that any concession won by the government must have an “essential nexus” to the “original purpose” of the legal restriction that would otherwise have prohibited the project applicant's proposal.¹⁷² A subsequent case, *Dolan v. City of Tigard*,¹⁷³ clarified that an “essential nexus” is necessary but not sufficient.¹⁷⁴ The government must also show “rough proportionality” between the concession and the negative impact of the proposal.¹⁷⁵

It should come as no surprise that at the time the Court handed down *Nollan* and *Dolan* (and for the most part still today), many saw these opinions as a pointed rejection of government overreaching.¹⁷⁶ In the wake of these opinions, most commenters seemed to assume that, to the extent that bargaining would still occur, the government's ability to exact concessions—and thus the bargaining costs for landowners entering into these deals with government—would decrease.

170 Andrew Seo, *New York Got It Right*, HARV. POL. REV. (Sept. 18, 2012, 4:51 PM), <http://harvardpolitics.com/united-states/new-york-got-it-right/>.

171 483 U.S. 825 (1987).

172 *Id.* at 837.

173 512 U.S. 374 (1994).

174 *Id.* at 383.

175 *Id.* at 391.

176 See Ann E. Carlson & Daniel Pollak, *Takings on the Ground: How the Supreme Court's Takings Jurisprudence Affects Local Land Use Decisions*, 35 U.C. DAVIS L. REV. 103, 105 (2001) (“The cases initially engendered fears about their potentially chilling effects on land use practices.”); Lee Anne Fennell, *Hard Bargains and Real Steals: Land Use Exactions Revisited*, 86 IOWA L. REV. 1, 13 (2000) (“The *Nollan/Dolan* rules are perhaps best understood as a highly visible symbolic protest against governmental excess. The decisions proved so psychologically gratifying for landowners that few property-rights advocates have been willing to look behind the decisions' anti-government rhetoric to consider their true impact on property rights and on the community.”).

To the surprise of many, when negotiation did ensue after *Nollan* and *Dolan*, the cost of bargaining with the government, at least in some jurisdictions, went up—not down. What explains this result? These findings are documented in an interesting article by Ann Carlson and Daniel Pollak, in which they argue that when local governments began to look closely at valuing the true harms caused by development, those governments found more harm to mitigate.¹⁷⁷ The true version of events, then, was that not all governments were overreaching prior to *Nollan* and *Dolan*. Rather, the results of Carlson and Pollak's study suggest that when jurisdictions applied the tests laid out in *Nollan* and *Dolan*, they determined that they were not reaching far enough.

While there is little reason to doubt that Carlson's prognosis is correct, externality framing poses an alternative hypothesis (and, of course, these explanations do not have to be mutually exclusive). The analysis that the Court demanded in *Nollan* and *Dolan* made governments look at the societal costs of proposed developments: it replaced the task of striking a deal with a forced negative externality framing and accounting. The negative externality framing could have put local governments on the road toward reallocating rights. Given that this accounting of losses is a matter of public record, neighbors and other concerned parties could also become more attuned to the stakes of a particular decision and come to see that decision through the perspective-altering lens of a negative externality frame.

4. The Potential for Hero Narratives (and True Heroes?)

Given all of the foregoing, why would anyone ever consciously choose the positive framing of a particular externality? One obvious reason, of course, is that the person has a vested interest in ensuring that a particular issue is not solved or aggressively pursued. Scholars might be inclined to label something a positive externality when they think encouraging internalization is unnecessary or even counterproductive, as internalization of positive externalities is less likely to occur. These reasons for choosing the positive externality framing of an issue are essentially the inverse of those for choosing a negative framing.

Another reason for positive framing is that while negative externality framing both is aided by the existence of a villain and constructs villains to justify changes in existing entitlements and legal policies, the positive externality framing constructs heroes. Indeed, a positive externality framing allows the actor to cast himself in the hero role. For example, imagine a corporation that pays less than a living wage in a particular community. One could imagine the corporation making contributions to local charities and telling a story of the positive externalities of those donations, a story that prominently features the corporation as a pillar of the community. That pos-

¹⁷⁷ See *id.* at 120 (documenting the move away from property bartering to impact fees as a result of *Nollan* and *Dolan* and finding that the cases encouraged the imposition of higher impact fees).

itive externality story would stand in sharp contrast to a story focused on the negative externalities that would result from the company's failure to make charitable contributions to a workforce it has arguably helped impoverish.¹⁷⁸ Choosing to emphasize the positive externalities of donating, rather than the negative externalities of failure to donate, then, allows the company to signal to the wider community that it is a good community citizen.

One final, and perhaps more noble, reason for positive externality framing is that positive framing may be more suited to rhetoric calling on society (sometimes through the vehicle of government and sometimes not) to make a sacrifice for the public good. In fact, when pressed to define what the "public good" means in a particular context, we often sketch out the positive externalities. Indeed, in the context of purely voluntary action, there is some experimental evidence that positive framing motivates higher levels of cooperation and investment in public goods.¹⁷⁹

Within the political context, we may see this play out as policymakers try to persuade constituencies to take voluntary steps to create positive externalities. It is, after all, little surprise that it was the "1000 Points of Light" campaign instead of the "1000 Candle Snuffers."

CONCLUSION

Each time an externality is framed as positive or negative, we make a choice. When we identify the negative externalities of a decision, we could just as easily identify its positive externalities because the negative and positive externalities are actually a mirror reflection of each other. Sometimes factors make one frame dominate the other, including society's baseline

178 For recent attempts to use the negative externality story to villainize corporations like Walmart and McDonald's, see Barry Ritholtz, *How Walmart's Low Wages Cost All Americans, Not Just Its Workers*, HUFFINGTON POST, (Dec. 18, 2013, 12:53 PM), http://www.huffingtonpost.com/2013/12/18/walmart_n_4466850.html (arguing that low wages mean that "employees of [Walmart and McDonald's] are often the largest recipients of [public] aid in their states" and that "we should put the full costs of shopping at Wal-Mart [sic] back where they belong: On the customers and the company itself"); see also Barry Ritholtz, *How McDonald's and Wal-Mart Became Welfare Queens*, BLOOMBERG (Nov. 13, 2013, 9:23 AM), <http://www.bloomberg.com/news/2013-11-13/how-mcdonald-s-and-wal-mart-became-welfare-queens.html> (making the same argument).

179 See James Andreoni, *Warm-Glow Versus Cold-Prickle: The Effects of Positive and Negative Framing on Cooperation in Experiments*, 1 Q.J. ECON. 1, 10 (1995) (finding that "framing the choice" to invest in a public good "as a positive externality substantially increases cooperation over framing the decision as a negative externality"); Eun-Soo Park, *Warm-Glow Versus Cold-Prickle: A Further Experimental Study of Framing Effects on Free-Riding*, 43 J. ECON. BEHAV. & ORG. 405, 415 (2000) (finding that this effect was particularly pronounced for people with an individualist value orientation, as opposed to a more cooperative value orientation). This effect may be particularly pronounced where the positive externalities are associated with what one perceives as an affirmative act rather than inaction. Cf. Robert C. Ellickson, *The Affirmative Duties of Property Owners* 7-8 (John M. Olin Ctr. for Stud. in Law, Econ., and Pub. Policy, Working Paper No. 499, 2014) ("Compared to a person who has altruistically refrained from acting, a person who has carried out a helpful act is more likely to feel a warm glow of self-satisfaction and to anticipate status rewards from others.").

sense of the actor's legal or moral entitlement to engage in (or refrain from engaging in) particular behavior, the availability of a villain to whom to ascribe negative externalities, and the relative invisibility of certain externalities until disaster strikes, when the negative framing becomes the face of the crisis. Often, however, the frame can change, is subject to choice, and can be manipulated.

While scholars have rarely focused on mirrored externalities, externality framing effects have very serious ramifications. The way we frame an externality can have profound effects on both individual cognition—the way we think about and process externalities—and on our politics and policy development. Prospect theory suggests that due to loss aversion, the availability heuristic, and our bimodal response to catastrophic risk, we will give much greater weight and attention to negative externalities and undervalue positive externalities.

The way we frame externalities also has serious implications for policy decision-making. While we find that positive frames create the possibility for hero narratives of voluntary sacrifice for the common good and may spur individual action, in most contexts we find that negative frames tend to dominate positive frames. Moreover, we find that framing can shape the array of policy prescriptions we are likely to consider and that we often reserve the strongest forms of government interventions for negative externalities. Additionally, in the policy arena, negative frames do better in competing for and sustaining our attention. Strong dominance of negative frames may serve as a “call to action” and ignite campaigns to redefine legal and social rights and obligations. The stakes in framing decisions—whether subject to our control and manipulation or limited by circumstances—are high, particularly because externalities are ubiquitous. Mirrored externalities matter because framing matters. It would serve us well to pay attention to them; we neglect them at our peril.

