Allocation and Uncertainty: Strategic Responses to Environmental Grandfathering

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This Article addresses puzzles relating to the allocation of grandfathering rights. First, when a government wishes to distribute grandfathering rights to societal actors who currently engage in a behavior that will soon be restricted, the societal actors may engage in inefficient behavior to secure additional property rights. To minimize that incentive, the government may employ a "retrospective allocation" based on activities that predate the limitations on resource access. Legal uncertainty makes it more difficult for societal actors to modify their behavior. Such systems have become increasingly common in the context of environmental and natural resource regulation.

Second, assuming societal actors act in anticipation of retrospective allocation, the criteria for winning allocations must change over time for retrospective allocation to maintain effectiveness on an ongoing basis.

Third, why should the government employ grandfathering, yet also wish to cabin the ability of societal actors to engage in rent-seeking under grandfathering? Even under retrospective allocation, the legislature still can

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reward rent-seeking. Strong community norms also may convince the legislature to devolve authority to a regulatory body that is not beholden to any interest group.

The arguments here are important for several reasons. First, the Article illuminates the growing, yet under-examined, "retrospective allocation" device. Second, retrospective allocation provides an important caveat to the law and economics literature presumption against legal transition relief. Third, retrospective allocation may apply beyond the allocation of grandfathered rights to natural resource access, such as the granting of amnesty for illegal immigrants, the assessment of academic actors and institutions, and the measurement of countries' conformity with international legal treaties.

INTRODUCTION

In this Article, I address puzzles relating to the allocation of grandfathering rights. First, assuming that the government wishes to distribute grandfathering rights to societal actors who currently engage in a behavior that is soon to be restricted, the societal actors may respond strategically to the pending new system: they may engage in inefficient behavior to secure property rights beyond those allocated under efficient behavior. How can the government minimize this incentive? Second, assuming the government takes steps to minimize the incentive to secure additional property rights, how should the government respond once societal actors begin to anticipate, and therefore act in anticipation of, those steps? Third, why should we expect the government to wish to employ a grandfathering regime, yet also to wish to cabin the ability of societal actors to take full advantage of grandfathering opportunities?

Traditional grandfathering-based systems make initial allocations of grandfathered rights—that is, the right to continue to engage in the behavior that will be restricted going forward—in accordance with a rule of first possession. The allocation of resource access in this way creates an incentive for societal actors to engage in a race to capture future resource access, on top of the then-existing race to capture the resource itself. Commentators have elucidated the tragedy of the commons nature of the race and have criticized it for creating incentives for competitors to expend inefficiently too much effort toward winning, and for causing inefficiently early distribution—and depletion—of the resource at issue.[1]

To prevent the creation of an incentive for actors to increase their current activities in order to receive a larger allocation of resource access in the future, the government may choose to base allocations not on current activities, but on recent activities that predate the announced intention to implement limitations on resource access. Such systems have become increasingly common in the context of environmental and natural resource regulation.[2] For example, fishery quotas authorized under federal law are sometimes allocated based on legal fish landings in years before the regulation was in place.[3]

Such methods, which I will call "retrospective allocation," seek to solve the problem of excessive behavioral modification by introducing some measure of legal uncertainty. Retrospective allocation may be seen as a variant of the race to capture, where the precise terms—or perhaps even the fact that there *is* a race—remains unannounced. If prospective participants in a race do not know that such a race is taking place—or at least do not know what will be measured to determine who wins the race—then they cannot effectively alter their behavior to guarantee victory. Because of this legal uncertainty, it is more difficult—and therefore less of an incentive is created—for societal actors to modify their behavior in a way that is inefficient for society in order to win the race.

Over time, however, the outcome may differ. After societal actors witness a number of unexpected retrospective allocations—that is, races where participants are truly unaware that any race is afoot—they might begin to anticipate them. This anticipation may manifest itself in two ways. First, societal actors who foresee the impending introduction of a property allocation device may alter behavior based on speculation as to how allocation will proceed. Second, societal actors who anticipate the impending introduction of an allocation device may engage in another kind of race: one to capture the regulatory mechanism so as to ensure that the allocation device will reward them and not others.

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1. *See infra* text accompanying notes 51–52.
2. *See infra* text accompanying notes 32–47.
3. *See infra* text accompanying notes 39–42.

For retrospective allocation to maintain its effectiveness on an ongoing basis, the criteria for winning resource allocations must change over time. In effect, to prevent retrospective allocation from devolving into a standard race as prospective participants learn the relevant criteria, the criteria must be unpredictably varied. The more unpredictable and seemingly random the variation is, the more effective retrospective allocation will be at avoiding overexpenditures and resource depletion in the long term.

The question remains as to why policy makers would take the steps that I describe. There are two possible answers to this question. First, one might argue that, despite a considerable literature suggesting that relief from legal transitions is normatively undesirable, the particular setting is one in which transition relief is desirable—whether because of economic efficiency, fairness, or the desire to preserve strong preexisting community norms. In that case, if the decision to employ grandfathering is desirable, then it would also be both desirable and understandable to choose a normatively preferable form of grandfathering.

A second explanation—one grounded in public choice—is required in cases in which transition relief would be normatively undesirable. In such cases, grandfathering may still be accepted as necessary in order to ensure passage of the new legal regime. On this account, the question remains as to why a policy maker, by reducing the chances of regulatory capture through retroactive allocation, would opt to forgo the chance to collect economic rents.[4] Indeed, the mere fact that rights are being grandfathered suggests that some rent-seeking has already been successful.

A pessimistic answer to the question of why policy makers would be open to a normatively preferable form of grandfathering is that, even with some form of retrospective allocation in place, the legislature has sufficient means to reward rent-seeking without detection. In this way, the legislature can have its cake and eat it, too: it can announce an allocation scheme that on the surface seems to allocate property fairly (if with mild unpredictability), while at the same time distributing valuable interests to preferred constituents behind the scenes.

A more optimistic public choice account is that preexisting norms render relevant community interest groups strong enough to convince the legislature to devolve authority to a regulatory body that is not beholden to any particular interest group. For example, in the case of fisheries, community norms may be especially strong, and federal law directs that quota systems be designed by fishery councils that include local representatives as well as national government representatives.[5]

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4. *See* Todd J. Zywicki, *Environmental Externalities and Political Externalities: The Political Economy of Environmental Regulation and Reform*, 73 TUL. L. REV. 845, 895 (1999) ("[R]educ[ing] the uncertainty of the stream of rents that will be forthcoming under the legislative contract . . . increas[es] the price that the politician can charge for her services.").

5. *See infra* text accompanying notes 38–39.

The arguments in this Article are important for several reasons. First, the Article sheds light on retrospective allocation, a growing yet under-examined method of initial allocation. The proliferation of tradable permit schemes at international, national, and regional levels[6] suggests that retrospective allocation will become increasingly common. Consider, in particular, the problem of global climate change, which has already given rise to tradable permit schemes—and accompanying permit allocation questions—at international and domestic levels.[7]

One might argue that the initial allocation does not matter: the trading of rights will result ultimately in an efficient allocation of rights, and therefore of the underlying resource.[8] This argument fails. As a threshold matter, while trading has tended to accompany the use of retrospective allocations in current environmental and natural resources law, there is no theoretical reason that it must.[9] Even with trading, however, initial allocations are important. First, the efficient final allocation of the resource will result only under the unlikely assumption that transaction costs are nonexistent or minimal; in the far more likely setting of positive transaction costs, the initial allocation may go a fair way toward determining the final allocation.[10] Second, even if the same final allocation results, the initial allocation will have an effect on the distribution of wealth.[11] Indeed, the importance of this distribution choice is evidenced by the

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6. Jonathan Remy Nash, *Framing Effects and Regulatory Choice*, 82 NOTRE DAME L. REV. 313, 323–24 (2006).

7. For discussion of allocation issues under the Kyoto Protocol, see Jonathan Remy Nash, *Too Much Market? Conflict between Tradable Pollution Allowances and the "Polluter Pays" Principle*, 24 HARV. ENVTL. L. REV. 465, 508 (2000). For discussion of allocation issues under the European Union greenhouse gas trading regime, see Robert L. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENVTL. L. REV. 293, 367–69 (2008).

8. *Cf.* Michigan v. EPA, 213 F.3d 663, 676 (D.C. Cir. 2000) ("If transaction costs were zero, the only effect of the initial assignment of cutbacks would be distributional: firms would make only the cheaper cutbacks, but firms with high emission-reduction costs would buy allowances from those with low costs and thereby transfer wealth to them.").

9. *Cf.* Nash, *supra* note 6, at 337–38 ("Viewed from the perspective of property rights, command-and-control regimes appear as pollution permit regimes under which the permits are not tradable separate from the underlying property."). Consider also the case of amnesty for illegal immigrants, which has, as I discuss below, similarities to retrospective allocation, *see infra* text accompanying notes 181–182, but where conferred rights are not tradable.

10. *Cf. Michigan*, 213 F.3d at 676 & n.3 (noting in general that "transaction costs notoriously are not zero," and that, in the context of the proposed nitrogen oxides trading system there at issue, "[a] glance at EPA's regulations for allowance trading will convince any doubter that transaction costs can safely be expected to be substantial"); Jonathan Remy Nash, *Taxes and the Success of Non-Tax Market-Based Environmental Regulatory Regimes*, *in* 5 CRITICAL ISSUES IN ENVIRONMENTAL TAXATION 735, 749 (Nathalie J. Chalifour et al. eds., 2008) (arguing that federal income tax treatment may impede trading of tradable pollution permits).

11. One who is allocated a permit and need not buy one will have more wealth than one who is not allocated a permit and needs to buy one; similarly, one who is allocated a permit and can sell it enjoys more wealth than one who is not allocated a permit. *See, e.g.*, John J. Donohue III, *Diverting the Coasean River: Incentive Schemes to Reduce Unemployment Spells*, 99 Yale L.J. 549, 552 (1989) ("[T]he allocation of the entitlement may have wealth effects that determine the parties' ability to pay

extensive lobbying[12] and litigation[13] that often accompany retrospective allocations. Third, the allocation of rights may have significance beyond the simple monetary realm. For example, ongoing resource extraction may be embedded in individual and community life choices, as is often the case for fishing rights.[14] Fourth, these problems will be magnified to the extent that, as is typically the case, the initial allocative scheme persists for many years.[15] Indeed, creating an initial allocation scheme generally creates along with it an incentive among beneficiaries to perpetuate that scheme.[16]

Second, the Article also argues that using uncertainty in allocating grandfathered rights provides an important caveat to the law and economics literature on legal transition relief. That literature takes the general view that transition relief is inadvisable as it discourages societal actors from actively anticipating legal transitions.[17] This Article argues that, somewhat to the contrary, an ability to anticipate legal transitions with absolute certainty may create an incentive to engage in welfare-reducing behavior.

Third, along similar lines, an understanding of retrospective allocations may change our perceptions of grandfathering generally. The literature on transition relief sometimes characterizes grandfathering as a necessary evil: in order to make a new legal regime politically feasible, it may be necessary to compensate those who would fare poorly under the new regime.[18] Yet, insofar as retrospective allocation methods constrain government discretion, they seem to exhibit elements of fairness that one would not expect if they were purely designed to compensate politically powerful losers. Indeed, retrospective allocations may be justified on grounds of fairness where a decision not to

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and hence determine the efficient result."). *See also id.* at 550 n.4 (discussing conditions necessary for allocation of entitlement not to affect the distribution of wealth).

12. *See, e.g.*, Lisa Heinzerling, *Selling Pollution, Forcing Democracy*, 14 STAN. ENVTL. L.J. 300, 328–32 (1995) (detailing the substantial lobbying that accompanied the drafting of the allocation provisions of the national sulfur dioxide trading system under the Clean Air Act Amendments of 1990).

13. *See, e.g.*, Alliance Against IFQs v. Brown, 84 F.3d 343 (9th Cir. 1996) (challenging allocation of fisheries quotas).

14. *See, e.g.*, John Tierney, *A Tale of Two Fisheries*, N.Y. TIMES, Aug. 27, 2000, at 38 (describing a deckhand on a New England fishing boat for 11 years who did not like the notion that, under a tradable fishing quota system, newcomers might have to buy their way into the fishery: He "was hoping soon to get his own boat. 'I don't want the door shut on me,' he said. 'I've put a lot of time into this business. That's not fair.'").

15. For example, Phase I of the national sulfur dioxide trading system was in effect from 1995 to 1999, during which period a single allocation scheme was in effect and controlled annual sulfur dioxide emissions allowance allocations. *See* Clean Air Act § 404(a), (e), 42 U.S.C. § 7651c(a), (e) (2006). Under Phase II, which began in 2000 and will remain in effect through 2009, a different—but still single—scheme controls annual allocations. *See* Clean Air Act §§ 402(28), 405, 42 U.S.C. §§ 7651a(28), 7651d (2006).

16. *See* Jonathan Remy Nash & Richard L. Revesz, *Grandfathering and Environmental Regulation: The Law and Economics of New Source Review*, 101 NW. U. L. REV. 1677, 1729 (2007).

17. *See infra* text accompanying notes 70–72.

18. *See infra* note 81.

grandfather would effect large, unwanted changes on individual lives and communities.

Fourth, an understanding of retrospective allocation should figure prominently in the design of a cap-and-trade system to address global climate change. It may also be of value beyond just the area of allocating grandfathered rights to access and deplete natural resources. As I note below,[19] the issues I consider here have analogies in diverse fields, such as granting amnesty to illegal immigrants, evaluation and assessment of academic actors and institutions, and assessment of countries' compliance with international human right obligations.

In Part I of this Article, I first explicate the notion of retrospective allocation. I also provide examples of retrospective allocation that have been put into practice in recent years. I then set out the benefits and costs of retrospective allocation as compared to other possible allocative approaches.

In Part II.A, I explain the evolution of retrospective allocation. I start by explaining how basic retrospective allocation evolves from the setting where races to capture may initially hold sway. Next, I suggest that the design of retrospective allocation regimes must evolve in order to retain some level of uncertainty in order to minimize the ability of societal actors to anticipate future retrospective allocations.

In Part II.B, I consider the difficult question of why, even assuming that retrospective allocations are a logical improvement over the traditional race, regulators would want to adopt them. Specifically, if the problem with the race to capture is the potential to game the system, then the best possible response may be simply to eliminate grandfathering by auctioning all property rights. One answer is that in particular settings grandfathering may have some normative value. Assuming, however, that it does not, and assuming (as seems generally to be the case) that regulators are not willing to eliminate grandfathering, why then would they be willing to offer even an incremental improvement? I argue that the evolution toward retrospective allocation is not only logical from an efficiency standpoint, but also from the standpoint of public choice.

In Part III, I discuss briefly possible applications for the analysis here in other settings. In particular, I explore the possible use of retrospective allocation in the contexts of immigration law, educational rankings and assessments, and evaluations of countries' compliance with international human rights obligations.

I. RETROSPECTIVE ALLOCATION

In this Part, I first examine the contours of retrospective allocation and offer a basic definition as well as some examples. I then turn to a normative

19. *See infra* Part III.

evaluation of retrospective allocation, which I conduct by comparing the costs and benefits of retrospective allocation with other possible methods of allocating resource depletion rights.

A. *The Contours of Retrospective Allocation*

In order to understand retrospective allocations, consider two paradigmatic settings in which retrospective allocation has arisen. Consider first a setting in which societal actors initially may freely access and deplete a resource, presumably under a rule of first possession.[20] The capture and ultimate use of the resource is societally desirable. However, perhaps because of the deleterious effects of the rule of first possession and the ensuing race to capture,[21] the government decides to institute a regulatory regime that will restrict both access to and the freedom to deplete a resource to a defined set of actors. The regime grandfathers preexisting users if it does not subject to regulation those who engaged in the activity before the regulation took effect.[22]

Limiting access to the resource without a cap on depletion may be insufficient, however. Continued, though restricted, access to an exhaustible natural resource will often result in unacceptable depletion. It has thus become increasingly common for the government to create a permit system under which societal actors may only access and deplete the resource to the extent that they hold permits authorizing them to do so.[23] Each permit allows the

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20. *See* Dean Lueck, *The Rule of First Possession and the Design of the Law*, 38 J.L. & ECON. 393, 393 (1995) ("First possession rules are the dominant method of initially establishing property rights.").

21. Perhaps most commonly associated with the celebrated fox-hunt case, *Pierson v. Post*, 3 Cai. R. 175 (N.Y. 1805), first possession can be conceptualized to invoke three elements: First, a property interest is awarded. Second, that interest is awarded to the party who wins the race to capture—that is, to the party who captures the property first. Third, the definition of capture is defined on a case-by-case basis, by reference to the particular circumstances and policy considerations raised by the property interest at issue.

The rule of *Pierson v. Post* has been adapted for use in numerous other settings. For example, versions of the race have been used to award property interests in other sorts of wild animals, *see, e.g.*, Ghen v. Rich, 8 F. 159 (D. Mass. 1881), radio frequencies, *see* Carol M. Rose, *Possession as the Origin of Property*, 52 U. CHI. L. REV. 73, 75 (1985), and baseballs, *see, e.g.*, Popov v. Hayashi, No. 400545, 2002 WL 31833731 (Cal. Super. Ct. Dec. 18, 2002). More generally, it has been applied in the context of the allocation of a publicly held natural resources, portions of which are reduced to private ownership as they are captured and removed from the commons. The race to capture may be conceived of narrowly or broadly in this regard. *See, e.g.*, Jason Scott Johnston, *The Rule of Capture and the Economic Dynamics of Natural Resource Use and Survival under Open Access Management*, 35 ENVTL. L. 855, 856 (2005) (distinguishing between races for commonly-owned and publicly-owned open-access property, and between rules that award only what one in fact captures as opposed to rules that grant at first possession the right to harvest the entire resource); Lueck, *supra* note 20, at 396 (distinguishing between races to capture that award the victor the entire stock and races to capture that award the victor simply some of the flow from the stock).

On the deleterious effects of the race to capture, see *infra* text accompanying notes 51–52.

22. Thus, for example, zoning ordinances generally grandfather non-conforming uses. *See, e.g.*, Nash & Revesz, *supra* note 16, at 1731.

23. *See supra* note 6 and accompanying text.

holder to exhaust a set amount of the resource;[24] permits are limited in number and freely tradable.[25] The permits themselves become tantamount to property rights in the underlying resource.[26] Grandfathering occurs when the permits are initially allocated to those who previously had access to the resource and substantially in proportion to the extent to, or rate at, which they previously enjoyed depleting it. In general, the total number of permits is set at or, more commonly, below current levels of depletion.[27] Thus, the effect of such a system is to cap the total amount of resource depletion. Those who engaged in the relevant behavior during the relevant time period therefore captured not only the resource that they sought (and could claim under the rule of capture), but also unknowingly captured valuable allocation rights that will allow them to continue to access and deplete the resource in the future.

Another paradigmatic setting for the emergence of retrospective allocation is a situation in which societal actors have been engaging in the process of producing a commodity—say, widgets. Widget production is societally desirable, but also necessitates (at least with current technology) the generation of a pollutant—say, an air pollutant—as a byproduct. At low levels of production, the air pollutant does not inflict substantial harm, but over time as widget production intensifies—both in terms of the absolute number of widgets produced and the number of widget plants—the pollution becomes problematic. In effect, the natural resource of clean air is being depleted. As above, the government decides to restrict access to the resource by restricting the set of actors who may emit the pollutant and thus deplete the resource. Also as above,

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24. For example, each allowance under the national sulfur dioxide emissions trading program authorizes its holder "to emit, during or after a specified calendar year, one ton of sulfur dioxide." Clean Air Act § 402(3), 42 U.S.C. § 7651a(3) (2006). It is theoretically possible instead to issue allowances in units of environmental degradation (which may differ from emissions). *See* Jonathan Remy Nash & Richard L. Revesz, *Markets and Geography: Designing Marketable Permit Schemes to Control Local and Regional Pollutants*, 28 ECOLOGY L.Q. 569, 618–21 (2001).

25. It is possible to construct trading regimes under which permits are tradable only within distinct regions, *see* Nash & Revesz, *supra* note 24, at 615–18; *id.* at 589–94 (discussing rejected proposals to have two separate regions for sulfur dioxide allowance trading), or to impose constraints on trades that traverse regional boundaries, *see id.* at 611–12 (discussing a two-zone air pollutant trading program in the Los Angeles metropolitan area, under which trades are allowed to proceed from the coastal zone to the inland zone, but not vice versa); *id.* at 618 (discussing the possibility of introducing exchange ratios for trades that traverse zonal boundaries).

26. *See* Nash, *supra* note 6, at 335–36. Note that many regulatory regimes, including in particular the Clean Air Act's sulfur dioxide allowance trading program, disclaim the notion that the programs' permits are property, *see, e.g.*, Clean Air Act § 403(f), 42 U.S.C. § 7651b(f) (2004) (characterizing an allowance under the program as "a limited authorization to emit sulfur dioxide" that "does not constitute a property right," and noting that "[n]othing in this subchapter or in any other provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization"), although one might question whether such a provision alone is sufficient to preclude a takings claim. *See* Jonathan Remy Nash, Tradable Environmental-Degradation Permits and the Takings Clause (Nov. 3, 2009) (unpublished manuscript, on file with Ecology Law Quarterly).

27. *See, e.g.*, Byron Swift, *U.S. Emissions Trading: Myths, Realities, and Opportunities*, 20 NAT. RESOURCES & ENVT. 3, 4 (2005).

the government decides to control the amount of depletion by using a permit system that allocates the permits via a system of grandfathering.

In the first setting, the capture of the resource is societally productive, while in the second setting, however, the generation of the pollutant is not (and never was) valuable.[28] Instead, the pollutant is a necessary byproduct to the production of widgets, which has always been and continues to be societally valuable.[29] Thus, while both scenarios rely on grandfathering to allocate permits, the grandfathering schemes seek to reward different ex ante behavior. In the first setting, the government presumably seeks to reward successful resource harvesters; thus, one would expect the allocations to be substantially proportional to prior harvest rates. In the second setting, by contrast, the goal is to reward not only successful widget production, but also widget production that generated comparatively less pollution; one would thus expect the grandfathering scheme to offer permits roughly proportional to prior widget production, with the distribution moderated by an adjustment to favor ecologically responsible widget producers and/or to disfavor ecologically irresponsible producers.[30]

These two examples present paradigmatic settings in which grandfathered distributions of permits might arise. Not all grandfathering regimes constitute retrospective allocations, however. To distinguish between retrospective and traditional modes of allocations, one must consider whether societal actors know with certainty, while the behavior is unrestricted, that engaging in the behavior will entitle them to grandfathered rights. Only if the actors were aware of the link between their actions and allocations can the regime be deemed retrospective. If not, then the regime is best described as traditional.[31]

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28. One can conceive of the second situation in some circumstances as similar to the first. Consider, for example, the capture of fish as a natural resource. One can consider the output fish-qua-product as distinct from the input fish-qua-resource. Indeed, this understanding is a reasonable one to the extent that at least some of the fish captured are not used as output (because, for example, they are too small or sick or not of a desired stock) yet they nonetheless are not returned (because they suffocate while in fishing nets). The output is societally productive while reduction in the input—which is the natural resource—is a byproduct of the societally beneficial activity.

29. *See* Nash, *supra* note 6, at 357 ("Market-based regulations tend . . . to frame their function so as to partition the act of pollution from the underlying activity out of which the pollution emission originates."); Lee Anne Fennell, *Property and Half-Torts*, 116 YALE L.J. 1400, 1407–16 (2007) (distinguishing between harm, and useful activities that may result in harm as a byproduct).

30. This makes sense from a property theory perspective, insofar as widget production has Lockean value, while pollution production qua pollution production does not. *See infra* note 44 (explaining Professor Leigh Raymond's application of this notion to the setting of allocation of air pollutant emission allowances).

31. Note that the concept of retrospective allocation need not be limited to situations where positive grandfathering rights are allocated in direct proportion to past polluting behavior. The concept can be extended to situations where rights are allocated in inverse proportion to past behavior. For example, the government might distribute *fewer* grandfathering rights to those who historically have polluted more. *See, e.g.*, Nash, *supra* note 7, at 508 (discussing the possibility of such an inverse allocation). Indeed, the concept can be extended to situations where negative obligations (or the choice between positive rights and negative obligations) are allocated based on past behavior. For example, the government might impose liability on polluters in proportion to their past polluting behavior, with those

Prominent recent examples of retrospective allocations are found in the area of environmental regulation.[32] As an example that corresponds to the first paradigmatic setting, consider the allocation of individual fishing quotas (IFQs). IFQ systems are a means of limiting the take of fish so as to preserve fish stocks.[33] Traditionally, fisheries operated as an open access system,[34] under which fishermen removed a fish from the commons and claimed a private property right by virtue of being the first to catch that fish—a traditional race to capture rule.[35] True to economic predictions, the open access system and the race to capture led to a tragedy of the commons and its accompanying symptoms: overfishing, depletion of fish stock, and inefficiently large expenditures of resources to catch fish.[36] Beginning in the late 1980s, the United States began to experiment with IFQs. Today, they are implemented under the Magnuson Fishery Conservation and Management Act (Magnuson Act).[37] The Magnuson Act vests regional fishery management councils and the Secretary of Commerce with authority to promulgate IFQ programs, if they so choose.[38] The fishery management councils have generally implemented IFQ

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who have polluted more bearing a larger share of the liability. I discuss one such possible application of retrospective allocation below. *See infra* notes 168–174 and accompanying text.

The concept also can be applied where what is being distributed is not grandfathering rights, but rather partial compensation, or some money to compensate recipients for the fact that they will no longer be able to engage (at least at no cost) in the particular behavior being regulated. *See* Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 583–84 (1986).

32. The fact that retrospective allocation is emerging in these areas is not surprising. *See infra* text accompanying notes 128–133.

33. *See generally* Katrina Miriam Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117, 155–56, 164–76 (2005).

34. Alison Reiser, *Property Rights and Ecosystem Management in U.S. Fisheries: Contracting for the Commons*, 24 ECOLOGY L.Q. 813, 820 (1997).

35. *See, e.g.*, Dallas DeLuca, Note, *One for Me and One for You: An Analysis of the Initial Allocation of Fishing Quotas*, 13 N.Y.U. ENVTL. L.J. 723, 734 (2005).

36. *See infra* notes 131–132 and accompanying text; 16 U.S.C. § 1801(a)(2) (2006) ("Certain stocks of fish have declined to the point where their survival is threatened, and other stocks of fish have been so substantially reduced in number that they could become similarly threatened as a consequence of (A) increased fishing pressure, (B) the inadequacy of fishery resource conservation and management practices and controls, or (C) direct and indirect habitat losses which have resulted in a diminished capacity to support existing fishing levels."); LEIGH RAYMOND, PRIVATE RIGHTS IN PUBLIC RESOURCES: EQUITY AND PROPERTY ALLOCATION IN MARKET-BASED ENVIRONMENTAL POLICY 15 & n.2 (2003).

37. 16 U.S.C. §§ 1801–1884 (2006).

38. The Magnuson Act asserts the federal government's right to fishery management within the exclusive economic zone, and to a limited extent outside the exclusive economic zone as well. *See id.* § 1811(a)–(b). The Magnuson Act defines "exclusive economic zone" as "the zone established by Proclamation Numbered 5030, dated March 10, 1983," with the proviso that, "[f]or purposes of applying this chapter, the inner boundary of that zone is a line coterminous with the seaward boundary of each of the coastal States." *Id.* § 1802(11).

After asserting this broad federal fishery management authority, the Magnuson Act proceeds then largely to devolve that authority on eight regional Fishery Management Councils. *See id.* § 1852. The councils and the Secretary of Commerce may develop fisheries management plans. *See id.* § 1853 (setting forth the required and discretionary contents of fishery management plans); *id.* § 1851 (setting forth national standards for fishery conservation and management, with which "[a]ny fishery

programs that distribute fishing quotas based on prior fishing history.[39] For example, one fishery council has allocated fishing quotas to owners and lessees of vessels based on legal fish landings in years before the regulation was put in place. In particular, only owners and lessees of—but not workers on—vessels that made legal landings of halibut or sablefish during 1988, 1989, or 1990 are eligible; each such owner or lessee receives a quota share based on the vessel's highest total legal landings of halibut and sablefish during 1984 to 1990.[40] Every year, the regional director allocates IFQs by multiplying the person's quota share by the annual allowable catch.[41] The regulation became effective in the mid-1990s, thus rewarding behavior well prior to the enactment (and indeed even the design) of the provision.[42] Owners and lessees of vessels that happened to make legal landings during one three-year period (1988–90)—but not those that made legal landings for 20 years prior thereto or in the years following—received quota shares. In other words, some owners and lessees received property interests in excess of the legal landings of fish that they knew at the time they were receiving.

An example that corresponds to the second paradigmatic setting is the allocation of air pollution emissions allowances. Domestically, under the national sulfur dioxide permit trading system authorized by the Clean Air Act Amendments of 1990, the underlying logic of the initial grandfathering is to give each existing electricity-generating source a number of allowances equal to the product (in tons) of the source's baseline fuel consumption—which was taken to be the average consumption during 1985 through 1987—and the lesser of 1.2 pounds of sulfur dioxide per million BTUs and its actual 1985 emissions rate (in pounds of sulfur dioxide per million BTUs).[43] In essence, sources received permits in rough proportion to the amount of fuel that they consumed and the pollution that they generated in years before the program became effective.[44]

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management plan . . . , and any regulation promulgated to implement any such plan shall . . . [be] consistent . . ."); *id.* § 1854(a)(1)(A) (providing for review by the Secretary of Commerce of all fishery management plans promulgated by regional fishery management councils). In particular, the management councils and the Secretary are granted the discretion to include in a fishery management plan "a limited access system for the fishery." *Id.* § 1853(b)(6).

At one point the Magnuson Act imposed a moratorium on new IFQ systems, but that moratorium expired in 2002. *See* Wyman, *supra* note 33, at 185–89.

39. Tradable fishing quotas schemes in other nations have also used historic data as the basis for allocating fishing rights. For explication of the allocation methods used in various fisheries, see COMMITTEE TO REVIEW INDIVIDUAL FISHING QUOTAS, NATIONAL RESOURCE COUNCIL, SHARING THE FISH: TOWARD A NATIONAL POLICY ON INDIVIDUAL FISHING QUOTAS (1999); DeLuca, *supra* note 35, at 742–56.

40. 50 C.F.R. § 676.20(b).

41. *Id.* § 676.20(f)(1).

42. *See* 58 Fed. Reg. 59375-03 (Nov. 9, 1993).

43. *See* 42 U.S.C. § 7651d(b)-(f), (g)(1), (2), (h)-(j) (2006); 40 C.F.R. §§ 73.10(b) & tbl. 2, 73.19, 73.20; *see also* Nash & Revesz, *supra* note 24, at 585.

44. The sulfur dioxide emissions allowance allocations were determined based upon two factors—fuel consumption and emissions rate—with historical data used only for the former. Leigh Raymond has

Consider as well the allocation of emissions allowances at the international level. Under the Kyoto Protocol—which was negotiated in 1997[45] and entered into force in 2005[46]—developed countries are called on to reduce their greenhouse gas emissions to a percentage of their 1990 emissions levels.[47]

These examples shed substantial light on the concept of retrospective allocations. But some of the contours remain hazy. Consider first what it means to be certain or uncertain about legal regulation. One could be truly ignorant—and, therefore, uncertain—of future congressional or regulatory action that later will make behavior during the current years important for subsequent allocations. When it is truly unanticipated, retrospective allocation rewards those who previously depleted the resource, and in proportion to the extent of that depletion, even though they acted without knowing that any such retrospective allocation would take place. One could also expect some congressional (or regulatory) action, but be uncertain as to exactly what time period—and, more generally, exactly what criteria—will be considered under a future allocation scheme.[48] Under this variant of retrospective allocation, the actor receives an allocation for having previously captured the resource without knowing exactly what rights would be awarded or how they would be distributed.

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argued that this makes sense, insofar as only the first factor relates to the beneficial activity in which societal actors were engaged. *See* RAYMOND, *supra* note 36, at 78–79 (noting that the Bush Administration's proposal for the allocation of sulfur dioxide emissions allowances blended two factors—historical fuel consumption and constant emissions rate—and that the use of historical data for the first factor, as opposed to the second, makes sense insofar as "[b]y itself, the consumption of fuel to generate electricity is close to th[e] Lockean ideal: it represents work by utilities benefiting the larger community by providing a vital commodity"; in contrast, "[t]he emissions rate . . . is obviously much less Lockean"). Thus, it makes sense to see societal actors as having engaged in a societally valuable race to capture the extent of their fuel consumption, but not their emissions rates.

45. Eileen Claussen, *Carping at Kyoto*, 34 GEO. WASH. INT'L L. REV. 247, 248 (2002) (book review of DAVID G. VICTOR, THE COLLAPSE OF THE KYOTO PROTOCOL AND THE STRUGGLE TO SLOW GLOBAL WARMING (2001)).

46. Erik Bluemal, *Unraveling the Global Warming Regime Complex: Competitive Entropy in the Regulation of the Global Public Good*, 155 U. PA. L. REV. 1981, 1993 (2007).

47. *See* Kyoto Protocol to the U.N. Framework Convention on Climate Change, Dec. 10, 1997, U.N. DOC. FCCC/CP/1997/7/Add.1, 2303 U.N.T.S. 148, *at* Annex, art. 3(1) (entered into force Feb. 16, 2005) ("The Parties included in Annex I shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012."); *see also* Nash, *supra* note 7, at 508 & n.175.

48. I consider situations in which one is "uncertain" to include those settings where one faces a more calculable "risk" as to exactly which criteria will control. *See* Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1724 (2004) ("[R]isk is variability in outcomes that can be captured by a probability distribution, but uncertainty cannot be quantified in this way."). As I discuss below, the more that risk prevails over uncertainty, the more likely it is that societal actors—or at least those with ample resources—may be able to hedge against that risk. Thus, for example, if a societal actor is certain that some, but not sure as to exactly which, of the next ten years will prove to be of relevance for allocation purposes, the actor can minimize risk by engaging in the requisite behavior during all ten years.

Consider second the question of timing: at exactly what time must the actor face legal uncertainty? An allocation is retrospective provided that, at the time that the actor's behavior will be relevant to determining allocations, the actor is not certain that that will in fact be the case. Thus, for example, in the setting of the fishing quotas allocation, the relevant years—1984 to 1990—predated even the announcement that an allocation scheme would be created.[49]

In sum, then, retrospective allocations distribute grandfathering rights to actors based on behavior undertaken when those actors could not have been certain that that behavior would affect the ultimate allocations. Actors who do alter their behavior in the hope of obtaining a larger allocation would be doing so based on speculation.

B. Benefits and Costs of Retrospective Allocations

Having conveyed an understanding of the notion of retrospective allocations, I turn now to an initial discussion of their costs or benefits by comparing retrospective allocation of depletion rights with two competing options. The first option allocates depletion rights based on the behavior of societal actors who are aware of the pending allocation scheme. The second option allocates depletion rights with no transition relief; instead, the permits are to be auctioned off annually by the government. In this Part, I compare these three resource allocation regimes with respect to four areas of relative benefit and cost: (1) incentive effects, (2) windfall allocations and fairness, (3) administrative ease and costs, and (4) efficiency gains and losses. The discussion is summarized in table format below.[50]

1. Incentive Effects

The incentive effects of a regime are incentives to engage in particular behavior to which the regime gives rise. Let us begin by considering reliance on the typical rule of first possession to allocate resource depletion rights. As a general matter, first possession will, for a resource that is exhaustible and scarce, often create a race to capture the resource. Such races to capture have been assailed for giving rise to undesirable incentives, including overinvestment in effort and technology to win the races, and overconsumption and depletion of the property at issue.[51] Each prospective participant faces the

49. I concede that the interplay of uncertainty and timing may create some hazy boundaries. For example, there is theoretically always uncertainty as to what form legislation will take once enacted, and indeed whether it will be enacted at all. Still, at times, those uncertainties may be at particularly low ebb. For example, Professor Kyle Logue has suggested that new tax laws should be applied prospectively, not from the date of enactment, but from the date that they are originally proposed in Congress. *See* Kyle Logue, *Tax Transitions, Opportunistic Retroactivity, and the Benefits of Government Precommitment*, 94 MICH. L. REV. 1129, 1180 (1996).

50. *See infra* tbl. 1.

51. *See* Lueck, *supra* note 20, at 396.

possibility that, if she does not herself participate in the race (or participates but to a lesser extent), then others will win the race and garner most or all of the available resource. The race to capture thus creates the incentive to invest inefficiently large amounts of money, time, and effort in winning the race. Similarly, the race creates an incentive to capture property now and in large amounts—even if it would be more efficient to delay capturing the property and/or to capture it in smaller amounts. The race thus creates the incentive to overconsume property resources and, to the extent that the resource at issue is either exhaustible or consumed at a non-renewable level, results in inefficient depletion of the resource.[52]

The problem with the race to capture arises out of the often-overlooked interplay between ex post allocation rules and efficiency, and ex ante rules and behavior. Commentators and policymakers often focus on ex post allocation rules in designing efficient regimes and seeking efficient outcomes.[53] This approach, however, ignores the fact that ex ante rules and behavior are not exogenous to the choice of ex post rule. People act in anticipation of ex post outcomes and adjust their ex ante behavior accordingly.[54] As a result, ex post allocation rules can have an effect on ex post efficiency.[55] Indeed, as Professor Lucian Bebchuk has explained, this problem exists even in settings where ex post bargaining is relatively costless, to the extent that ex ante bargaining may not be.[56] And, as I discuss below, races to capture are likely to introduce high ex ante costs.[57]

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52. To some degree, the fact that race to capture regimes may award windfalls—that is, they may allocate property to undeserving actors over deserving ones, *see infra* Part II.B.2—may offset some the problems of overinvestment: the factual uncertainty inherent in any race to capture should serve to some degree to temper racers' investments in trying to win the race. For example, the fact that Post knows that Pierson may be awarded the fox despite his substantial efforts (or that the fox he catches may be far less valuable than the foxes caught by others) should reduce the amount of investment that Post is willing to put into winning the race. *See* Pierson v. Post, 3 Cai. R. 175 (N.Y. 1805).

At the same time, however, the factual uncertainty may lead to *greater* investment, especially as actors continue to engage in the race multiple times and the resource becomes more valuable and scarcer. Provided that greater investments make (or are perceived to make) winning the race sufficiently more likely, then actors will invest more in trying to win the race: if Post knows that his investments will yield foxes (and more valuable foxes) enough of the time such that the cost of his investments will be covered, then the investments will be economically sound.

53. *See* B. Timothy Heinmiller, *The Politics of "Cap and Trade" Policies*, 47 NAT. RESOURCES J. 445, 456–61 (2007).

54. *See* Giuseppe Dari-Mattiacci et al., *Crowding-Out in Productive and Redistributive Rent-Seeking*, 133 PUB. CHOICE 199, 211–15 (2007) (describing how societal actors may engage in unproductive "redistributive rent-seeking" in order to obtain greater allocations of goods with no broad societal benefits).

On the distinction between ex ante and ex post efficiency, see Eric A. Posner & Cass R. Sunstein, *Should Greenhouse Gas Permits be Allocated on a Per Capita Basis?*, 97 CAL. L. REV. 51, 76 (2009); Lucian Arye Bebchuk, *Property Rights and Liability Rules: The Ex Ante View of the Cathedral*, 100 MICH. L. REV. 601, 612 (2001); *see also* Clarisa Long, *Proprietary Rights and Why Initial Allocations Matter*, 49 EMORY L.J. 823 (2000).

55. *See* Bebchuk, *supra* note 54, at 612–13.

56. *See id.* at 613.

57. *See infra* notes 127–128 and accompanying text.

To the extent that the law is transparent in awarding property based on winning the relevant race—that is, based on fulfilling certain requirements or meeting certain goals—eligible societal actors are given the incentive to modify their behavior to try to fulfill those requirements and meet those goals. Assuming that the race is designed to further societally desirable objectives, these behavioral modifications are presumably desirable, *to a point*. The problem arises, however, that too many actors will engage in too many—or too substantial—modifications, such that the incentives created by the race exceed those reasonably and efficiently demanded by society. Indeed, it may often be the case that the deleterious effects of the traditional race outweigh the benefits that it offers.

Society, through legislatures or courts, designs first possession schemes to award property to those who engage in socially desirable behavior; decision makers seek both to reward after-the-fact behavior that society considers valuable and worthy and also perhaps to create an ex ante incentive to engage in such behavior.[58] In order properly to award property under a race to capture, then, it is necessary for society somehow to *measure* who engages in that behavior, and to what extent. However, the foreknowledge that society will seek to measure behavior and then award property on that basis creates an incentive for societal actors to adjust their behavior in advance.[59] It is possible that actors will alter their behavior suboptimally.[60]

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58. *Cf.* RAYMOND, *supra* note 36, at 53 (describing how "intrinsic" property allocation methods, which are based on historical performance, arise out of Lockean norms and, as such, "recognize[] prior uses that are *tangible* and *beneficial*").

59. In this sense, the problem with the traditional race to capture is similar to the Heisenberg uncertainty principle in quantum physics. The uncertainty principle dictates that an attempt to measure one feature of a subatomic particle necessarily has an effect on the particle, such that some other feature of the particle will be altered. *See* WERNER HEISENBERG, PHYSICS AND PHILOSOPHY: THE REVOLUTION IN MODERN SCIENCE 47–48 (1958). *Cf.* Laurence H. Tribe, *The Curvature of Constitutional Space: What Lawyers Can Learn from Modern Physics*, 103 HARV. L. REV. 1, 20–24 (1989) (discussing applications of the uncertainty principle to law); *but cf.* Jonathan Remy Nash, *Examining the Power of Federal Courts to Certify Questions of State Law*, 88 CORNELL L. REV. 1672, 1675 n.9 (2003) (noting the limits of applying physics, which develops theories based upon observations of the universe, to legal structures, which are developed by society).

60. There are other settings in which anticipation of a government action may generate suboptimally high behavioral adjustments. Professor Kyle Logue describes the phenomenon of "'under-the-wire' investment activity," where taxpayers respond to the "enormous incentive (once the transition is being considered by Congress but before it has been enacted) for taxpayers to increase their level of investment in [an] asset that is going to lose . . . preferential tax treatment." Logue, *supra* note 49, at 1179. Professor David Dana has noted that "investors have available to them an alternative to reducing their level of investment in response to the risk of future natural preservation regulation: they can accelerate their investment and, in essence, beat the regulatory clock." David A. Dana, *Natural Preservation and the Race to Develop*, 143 U. PA. L. REV. 655, 681 (1995); *see also* Dean Lueck & Jeffrey A. Michael, *Preemptive Habitat Destruction under the Endangered Species Act*, 46 J.L. & ECON. 27 (2003) (application of this principle to habitat modification and the Endangered Species Act). Robert Cooter has discussed how, "when . . . government action is likely to be judged a taking [of property] with full compensation, [a property owner] will give insufficient weight to [the] loss in profits in the event of government action," and, as a result, "will invest excessively." Robert F. Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, 73 CAL. L. REV. 1, 21 (1985). And Professor Steven

Retrospective allocations use the injection of legal uncertainty to achieve two goals. First, legal uncertainty serves to reduce undesirable behavioral alterations. If societal actors are unsure of the basis on which property will be allocated, then they are limited in the specific steps they can take to modify their behavior to try to obtain later access to the property.[61] From the perspective of ex ante and ex post efficiency, introducing uncertainty into the precise content of ex post rules limits the ability of societal actors to adjust their ex ante behavior.

At the same time, when retrospective allocation is used to distribute grandfathered rights, the desirable behavior that the race to capture is meant to encourage in the first place still will be undertaken. Since the ultimate legal criteria for distributing the grandfathered rights are based on actors' performances in prior runs of a typical race to capture, one can rely on the participants engaged in the race to exert effort to capture the property. In the end, behavior that has been previously deemed to be societally desirable (that is, behavior designed to capture the resource) will continue for this limited time,[62] but there will not be suboptimally large behavioral modifications that, through their effects on allocations, might have impacts potentially far into the future. Indeed, this reasoning explicitly underlies the structure of some retrospective allocation regimes. For example, in an environmental impact statement governing the allocation of fishing quotas set out above, the fishery council explained: "'[E]xtending [the qualifying period] beyond [1990] would have provided an incentive both for additional fishermen to enter the fishery and for previous entrants to adopt extreme fishing methods in order to increase their landings and, therefore, the [quota shares] they would receive if an IFQ program [were] implemented.'"[63] Subsequently called upon to consider a legal challenge to the allocation method, the Ninth Circuit found it "persuasive" that, "if participation in the fishery while the rule was under consideration had been

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Shavell has noted the possibility that "a firm that . . . would only have entered [a] harmful activity in period 2 might . . . choose to enter in period 1 in order to be able to obtain grandfathered status and operate later in period 2 at lower cost." Steven Shavell, *On Optimal Legal Change, Past Behavior, and Grandfathering*, 37 J. LEG. STUD. 37, 57 (2008). *Cf.* Ehud Guttel, *The (Hidden) Risk of Opportunistic Precautions*, 93 VA. L. REV. 1389, 1395–1406 (2007) (arguing that legal certainty as to the necessity for a tortfeasor to compensate a victim provided that the victim make some precautionary investment creates an incentive for inefficiently high investments in precaution).

61. The effect of legal uncertainty in this context can be contrasted with the notion, advanced by the precautionary principle, that steps should be taken to *avoid* catastrophic effects, even if the probability that they may occur is uncertain. *See generally* Jonathan Remy Nash, *Standing and the Precautionary Principle*, 108 COLUM. L. REV. 494, 498–504 (2008).

62. To be sure, there presumably will be behaviors undertaken during the "measurement years" that are undesirable. Indeed, those behaviors—including suboptimally high investments and resource depletion—are the reasons for the new limitations on resource depletion of which the grandfathering system is a part. The point, however, is that while the new legal system is designed in the long term to address those problems, retrospective allocation is designed to limit *additional* undesirable behavior that otherwise might arise during the transition.

63. Alliance Against IFQs v. Brown, 84 F.3d 343, 346 (9th Cir. 1996) (quoting a 1992 environmental impact statement).

considered, then people would have fished and invested in boats in order to obtain quota shares, even though that would have exacerbated overcapacity and made no economic sense independent[] of the regulatory benefit."[64] Added the court: "Had the Secretary [of Commerce] extended the 1990 cutoff, the incentive to pour money and time into the fishery in order to get a bigger quota share, for those who could afford a long term speculation, would have been enormous."[65]

For these reasons, retrospective allocations seem to have an advantage, in terms at least of incentive effects, over allocations based on a race to capture. But will this advantage persist over time? Consider the possibility that, as the implementation of retrospective allocations becomes more commonplace, societal actors will anticipate that implementation and thus try to adjust their behavior to maximize their take despite the legal uncertainty inherent in such allocations.[66] The first time a retrospective allocation is implemented, societal actors will likely be caught completely off guard. The same may be true the second and third times. Eventually, however, it is reasonable to expect at least sophisticated societal actors to anticipate such schemes.[67] Indeed, in the analogous setting of incentives for landowners to develop land before government restrictions on regulation take effect, Professor David Dana has identified two reasons to expect accelerated development that seem applicable to the setting of natural resources depletion: "First, the potential scope of preservation regulation is now so broad that the owners of virtually any undeveloped land in the United States know or should know that they are subject to some risk of future developmental controls,"[68] and, "[s]econd, although the potential scope of ecological preservation is now vast, its actual progress has been gradual. With respect to any particular ecological resource, the lag time between the date of the first serious proposal for preservation regulation and the actual implementation of such regulation is often many years."[69] If indeed there is a time lag between proposal of a regulation and its

64. *Id.* at 346. The legal ground for this aspect of the challenge was that consideration of prior years violated the statutory directive that the council and the Secretary of Commerce "take into account . . . present participation in the fishery." 16 U.S.C. § 1853(b)(6)(A) (2006). The court sustained the fishery's allocation method in the face of this challenge. *See Alliance*, 84 F.3d at 346–48.

65. *Alliance*, 84 F.3d at 348.

66. *Cf.* Dana, *supra* note 60, at 681 (noting that owners of undeveloped land know or should know about the risk of future land use controls).

67. *Cf.* Kyle D. Logue, *Legal Transitions, Rational Expectations, and Legal Process*, 13 J. CONTEMP. LEGAL ISSUES 211, 213 (2003) (arguing that it is reasonable to expect sophisticated actors to anticipate legal changes).

68. Dana, *supra* note 60, at 681.

69. *Id.* at 683. Dana offers two other reasons to expect landowners to anticipate and to have the opportunity to engage in accelerated development before government regulation impedes that option:

> Third, the losses imposed by uncompensated natural preservation regulation sometimes are very large in absolute terms and in terms of the overall value of the affected investment . . . . Fourth, and perhaps most important, the strong norm of non retroactivity in the regime of natural preservation regulation means there is a relatively easy means of

actual implementation—such that societal actors have ample time to anticipate, prepare, and plan for the new regulatory regime—how can retrospective allocation remain uncertain in order to retain its efficacy?

The question is made more complicated because society ordinarily *wants* societal actors to anticipate legal change. Law and economics theorists argue that it is efficient for societal actors to anticipate, and adjust in advance to, changes of all sorts.[70] Government does not generally provide relief from these types of changes; legal change, they explain, should be treated no differently.[71] And, it is not unreasonable to expect at least sophisticated actors to anticipate legal changes.[72] The introduction of completely random changes to the governing legal regime would render such anticipation impossible.

The answer to the conundrum is constrained randomness. In a setting of a truly unanticipated retrospective allocation, the participants do not know even that an allocation is afoot. After a time, it is reasonable, and probably desirable, for societal actors to expect that a retrospective allocation scheme is indeed afoot. The key is to keep random the precise criteria by which the allocation will be conducted. The criteria cannot be completely random, or else the allocation might be based on criteria that are immaterial to a desirable allocation or even criteria that would be undesirable to reward. Instead, a retrospective allocation scheme should use criteria that ultimately are designed to reward, and thus create an incentive to engage in, desirable behavior.[73] The criteria also need to be random enough so as to discourage strategic behavioral modification.[74] For example, in the case of fisheries, while one would expect

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> protecting oneself against the risk of a future uncompensated regulation restricting development—develop immediately and thoroughly.

Id. at 684.

70. *See* Nash & Revesz, *supra* note 16, at 1726 (explaining that, under the dominant law and economics approach to legal transitions, transition rules that lessen the effect of legal regime shifts are undesirable insofar as they inefficiently discourage societal actors from anticipating legal change).

71. *See, e.g.*, Kaplow, *supra* note 31, at 584–87; *cf.* Ann Woolhandler, *Public Rights, Private Rights, and Statutory Retroactivity*, 94 GEO. L.J. 1015, 1055 (2006) (noting the law and economics literature that views "prospective and retroactive regulatory changes as essentially equal" in that "[b]oth may upset expectations, creating economic winners and losers," and that concludes that "[p]arties should be encouraged to anticipate legal change, whether nominally retroactive or prospective").

72. *See* Logue, *supra* note 67, at 213 (arguing that it is reasonable to expect sophisticated actors to anticipate legal changes).

73. *See supra* text accompanying notes 28–30.

74. A simple analogy is to the notion that teachers seeking to examine students over a range of material may select certain topics on which to test but, in order to ensure that students cannot cut corners on what they study, will not tell students exactly what topics will appear on the examination.

Another analogy arises in the context of attempts by accrediting agencies to measure performance without thereby affecting how participants perform. For example, in Great Britain, a 2005 announcement of how productivity of university faculties would be measured in 2008 explains:

> The [Research Assessment Exercise] exists to measure the quality of research in [U.K. higher education institutions]. It should carry out that function without distorting the activity that it measures, and it should not encourage or discourage any particular type of activity or behaviour other than providing a general stimulus to the improvement of research quality overall.

that new IFQ systems might use similar criteria—including reliance on historical fishing data—to allocate IFQs, one also would expect new IFQ systems to vary the precise historical data on which the criteria would draw.[75] Thus, one system might rely on the three years immediately preceding the program, while another system might rely on the five-year period that ended three years before the program was undertaken.[76]

Retrospective allocation seems preferable to allocation based on a race to capture on the axis of incentive effects. However, both systems are subject to criticism from the traditional law and economics approach, which views incentives for societal actors to anticipate legal transitions as desirable.[77] As both of these allocative mechanisms afford societal actors some measure of relief from legal regime change, they dampen the incentives for actors to anticipate legal transition. Grandfathering, in particular, may give rise to perverse incentives, such as barriers against entry[78] or exit,[79] and incentives to perpetuate and extend grandfathering rules.[80] As neither a race to capture nor retrospective allocation encourages societal actors to anticipate and adjust to coming legal changes, law and economics scholars are likely to view both options as worse than simply providing no transition relief at all.

Some commentators, however, have nonetheless argued that the absence of transition relief may give rise to undesirable incentives and that it may be normatively desirable to have the government offer limited transition relief in some narrow settings.[81] Professor Steven Shavell has argued that, in order to

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HIGHER EDUCATION FUNDING COUNCILS FOR ENGLAND ET AL., RESEARCH ASSESSMENT EXERCISE 2008: GUIDANCE TO PANELS 5–6 (2005), *available at* http://www.rae.ac.uk/pubs/2005/01/rae0105.pdf.

75. The uncertainty with which societal actors initially might view retrospective allocations thus might evolve toward risk. This might allow wealthier actors to hedge. *See supra* note 48.

76. The question of exactly what criteria might appropriately be varied is likely to be a difficult one. In my view, for example, it would not make sense to vary the *classes* of societal actors—such as owners, lessees, and workers in the fishing quota context—who will be entitled to allocations.

Another difficult question is how broadly to vary the criteria. Choosing three, as opposed to seven, years out of a ten-year period will greatly increase the costs actors face to hedge, and thus decrease the incentive to do so. On the other hand, choosing seven out of ten years will afford actors more leeway and seems more inclusive and fairer. *Cf.* New York v. EPA, 413 F.3d 3, 36–37 (D.C. Cir. 2005) (upholding EPA's decision to revise new source review Clean Air Act regulations to allow firms, instead of relying upon the two years immediately preceding a physical change to a plant to determine a baseline pollution level, to choose any two of the preceding ten years, on the ground that "a ten-year period was necessary 'to ensure that the normal business cycle would be captured generally for any industry'") (quoting 67 Fed. Reg. 80,186, 80,216 (Dec. 31, 2002)), *cert. denied*, 550 U.S. 928 (2007).

77. *See supra* text accompanying notes 70–72.

78. *See* Nash & Revesz, *supra* note 16, at 1729.

79. *See* Nash, *supra* note 7, at 506 (describing barrier against exit); *see also* Nash & Revesz, *supra* note 16, at 1708–12 (discussing the old plant effect).

80. *See* Nash & Revesz, *supra* note 16, at 1729.

81. Other commentators offer different justifications for legal transition relief. Dean Saul Levmore argues that transition relief may be acceptable (if not normatively desirable) where those who would receive transition relief would successfully oppose the normatively preferable new legal regime in the absence of transition relief. *See* Saul Levmore, *Changes, Anticipations, and Reparations*, 99 COLUM. L. REV. 1657, 1665–66 (1999); *infra* notes 152–154 and accompanying text. Dean Richard Revesz and I have argued that concerns of fairness may justify limited legal transition relief. *See infra* note 108 and

retain incentives to encourage actors to comply with existing legal regimes that require behavior or investment of a durable nature, grandfathering of past behavior may be socially advantageous.[82] Dean Richard Revesz and I have argued that the large expenses generally associated with compliance with environmental regulation might discourage actors from voluntarily complying with impending regulation absent some assurance that a subsequent tightening of the regulatory standard would render that investment quickly obsolete.[83] Professors Lawrence Blume and Daniel Rubinfeld have argued that the risk of uncompensated losses that result from regulatory action may produce underinvestment in socially productive activity.[84] Professor Jonathan Masur has argued that, while flexibility may sometimes be more valuable to a government,[85] there may be situations which, to ensure orderly functioning of regulatory systems, the government should be empowered to commit itself to particular legal positions—to induce private actors to undertake certain actions.[86] One way that the government can commit itself in this way is by parceling out legal transition relief.[87] Finally, Professor Kyle Logue has observed that Congress has at times attempted to alter taxpayers' behavior using the tax code;[88] for such so-called "incentive subsidies" to be effective, taxpayers must be able to rely on the government's commitment to retain those incentives.[89]

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accompanying text. Last, the government response to the current economic crisis suggests that transition relief may be appropriate in order to avoid the possibility of widespread externalities. *See infra* notes 110–113 and accompanying text.

82. *See* Shavell, *supra* note 60, at 38–39.

83. *See* Nash & Revesz, *supra* note 16, at 1727–28; *accord* Shavell, *supra* note 60, at 69.

84. *See* Lawrence Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 CAL. L. REV. 569, 582–99 (1984) (explaining that the absence of private insurance against government action necessitates compensation for government takings in order to minimize suboptimally low investments); *cf.* Palazzolo v. Rhode Island, 533 U.S. 606 (2001) (holding that the mere fact that someone takes title to property after the government has imposed a regulation on land use does not bar a takings claim).

While Blume and Rubinfeld argue that private insurance against government regulation is generally not an option, there may be settings in which the private sector can provide the assurance necessary to encourage societal actors to take steps even before a government program is initiated. Consider the efforts being undertaken by private entities to create guidelines to certify voluntary greenhouse gas reduction credits even before the advent of—or in the absence of—a formal trading system. *See* Amena H. Saiyid, *Consortium Issues Carbon Standard to Certify Credits Earned in Voluntary Carbon Markets*, DAILY ENVT. REP. (BNA), Nov. 20, 2007, at A-11.

85. *See* Jonathan Masur, *Judicial Deference and the Credibility of Agency Commitments*, 60 VAND. L. REV. 1021, 1026–31 (2007).

86. *See id.* at 1031–60 (discussing the deleterious effects of decreased legal stability). *But cf.* Eric A. Posner, Courts Should Not Enforce Government Contracts (U. Chicago Law & Economics, Olin Working Paper No. 132 2001) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=281436.

87. *See* Masur, *supra* note 85, at 1063–67.

88. *See* Logue, *supra* note 49, at 1132, 1138–39.

89. *See id.* at 1144. Logue draws a parallel to government's obligation to fulfill its contractual obligations and, on the basis of this analogy, argues that the government should grant transition relief when changing incentive provisions. *See id.* at 1143–52.

In the end, the relative desirability, from the perspective of incentive effects, of a system with no transition relief will depend on the particular circumstances. In the setting of resource access allocation, it may often be the case that capital investments are large, and there is a desire to evidence government commitment so as to avoid suboptimally low investments in resource extraction.[90] If those characteristics are present, then at least some time-limited form of grandfathering might be societally preferable to no transition relief at all.

2. *Windfall Allocations and Fairness*

I turn next to the measure of windfall allocations and fairness. Professor Eric Kades has defined windfalls as "economic gains independent of work, planning, or other productive activities that society wishes to reward."[91] Fairness can be seen to speak to the desirability of allocating similar rewards to those who are similarly situated.[92] Allocation systems that distribute windfalls and other unfair allocations impose costs on the system by potentially raising questions about the legitimacy of the system and by jeopardizing the incentive to participate in the system or similar systems of allocation with the expectation of receiving some reward.

Whether a race-to-capture allocation system will award windfalls and unfair allocations turns to a great degree on the structure and design of the system. A simple race to capture may easily award windfalls: consider, for example, the award of the fox in *Pierson v. Post* not to the individual who invested time and effort in chasing the fox for the better part of the day, but rather to the "saucy intruder."[93] The law can try to minimize windfalls by defining the requirements for winning the race to capture with an eye to identifying truly deserving parties. In some sense, one of the main reasons to adopt a race to capture is to do just that.[94] At some point, however, some windfalls must be allowed to slip through[95] in order to avoid large administrative expenses and complications.[96]

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90. *See* Shavell, *supra* note 60, at 73.

91. Eric Kades, *Windfalls*, 108 YALE L.J. 1489, 1491 (1999).

92. *See* Posner & Sunstein, *supra* note 54, at 82 (noting that "we [can] understand the idea of fairness . . . as a requirement that similarly situated people be treated similarly"); *cf.* Thomas Brennan, Lee Epstein & Nancy Staudt, *Economic Trends and Judicial Outcomes: A Macrotheory of the Court*, 58 DUKE L.J. 1191, 1206 (2009) (noting that, if "[s]imilarly situated litigants [are] denied uniform treatment in the courtroom," then "perceptions of fairness would be damaged").

93. Pierson v. Post, 3 Cai. R. 175, 182 (N.Y. 1805); *see supra* note 21 for discussion.

94. *See, e.g.*, Johnston, *supra* note 21, at 858.

95. As a general matter, the law allows those who accede to windfalls to keep them. *See, e.g.*, City of Everett v. Estate of Sumstad, 631 P.2d 366 (Wash. 1981). Indeed, not only does the law allow one who accedes to a windfall to keep the profit, but the current tax law does not even tax the profit at that time. *See, e.g.*, BORIS I. BITTKER, MARTIN J. MCMAHON, JR. & LAWRENCE A. ZELENAK, FEDERAL INCOME TAXATION OF INDIVIDUALS ¶ 3.05[2] (2d ed. 2005); Thomas L. Evans, *The Taxation of Nonshareholder Contributions to Capital: An Economic Analysis*, 45 VAND. L. REV. 1457, 1524 n.235 (1992) ("If a person, through either skill or good luck, manages to purchase property from another at a

One can argue that a retrospective allocation system is more congenial to taking complex considerations into account in meting out property: whatever criteria are ultimately used to determine the winners of the race can be chosen with deliberation.[97] They can be chosen to reward past efficiency or ecologically-friendly resource capture. Indeed, they can be designed so as not to reward isolated or random acts—or, for that matter, a strategy not well calculated to succeed (that is, to win the underlying race to capture, on the results of which the grandfathering allocations will be based)—and thus minimize windfalls.[98] For example, the fishing quota allocations described above are unlikely to award windfall allocations insofar as only owners and lessees of vessels who made at least one legal landing during a (theretofore unannounced) three-year period receive any allocation, and any allocations are based on legal landings achieved during a six-year period.[99]

Despite this potential benefit over a race to capture, retrospective allocation also has a downside. Determining criteria after the fact may mean that some actors unfairly receive allocations while others do not, even if the two groups are similarly worthy, simply because one group happens to fit the strictures of the criteria.[100] For example, in the fisheries context, owners and

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price below its fair market value, the purchaser is not required to immediately include the bargain element in income."). *Cf.* BITTKER ET AL., *supra*, ¶ 3.08[3] (noting that the tax treatment of an ordinary bargain is "quite different" from the tax treatment for a "'bargain purchase' in the sense in which this term is used by tax practitioners; viz., to denote a purchase of property for less than fair market value if the difference reflects an extraneous objective, such as the seller's desire to confer an economic advantage on the buyer," where income is imputed for tax purposes).

The tax treatment of fortuitous finds, while less clear than that of windfalls, in practice seems also to give favorable tax treatment to those who benefit by happenstance. *See* BITTKER ET AL., *supra*, ¶ 3.05[2] (noting that, "[a]lthough the treasure trove regulation clearly contemplates the inclusion in gross income of noncash treasure troves, there is virtually no judicial discussion of the taxability of such treasure troves," which "suggests the IRS is generally willing—despite the treasure trove regulation—to treat noncash finds as zero basis assets, with taxation deferred until the found property is sold").

96. *See* Dhammika Dharmapala & Rohan Pitchford, *An Economic Analysis of "Riding to Hounds":* Pierson v. Post *Revisited*, 18 J.L. ECON. & ORG. 39, 54 (2002) (discussing the effect of enforcement costs on the economically optimal rule in *Pierson v. Post*); *but see id.* at 55–58 (arguing that the rule advanced in the *Pierson* dissent may sometimes be economically preferable even where enforcement costs loom).

The decision (as expressed either in actual law or in practice) not to impose a tax on windfall gains can also be seen to be grounded in administrative ease. *See* Evans, *supra* note 95, at 1524 n.235 ("Generally, taxing persons on economic advantages they obtain in bargain purchases would be inadministrable; difficulties of valuation, liquidity, and enforcement would make this an impossible task.").

97. As compared to a traditional race to capture—which is determined by a court under a judicially-developed rule—retrospective allocation will presumably be effectuated by the legislature or an administrative body that will have the opportunity to reflect on the criteria it chooses to determine winners and allocate grandfathering rights.

98. I address below the question of whether awarding grandfathering relief bestows a windfall on existing actors in favor of new entrants. *See infra* text accompanying notes 106–109.

99. *See supra* text accompanying notes 40–42.

100. *See* RAYMOND, *supra* note 36, at 53 ("Baselines can be determined on the basis of a single year or by averaging several years of prior use. Determining the precise method of setting the baseline is

lessees of vessels that, for one reason or another, fished in the relevant fishery from 1984 to 1987 and again from 1991 on, but fished in other fisheries during the 1988–90 period, would receive no quota shares, while an owner of a vessel that only fished in the relevant fishery during 1989 would.[101] The typical race to capture, however, also features problems of fairness. It is entirely possible for two similarly situated individuals to receive entirely different allocations under a rule of first possession.[102] Retrospective allocation criteria should not be chosen absolutely randomly, but rather are chosen from a list of criteria, all of which will give rise to desirable incentives among societal actors.[103] At the very least, then, outcomes that may seem unfair under a retrospective allocation will presumably be the result of some deliberation, and ultimately a decision that is made for the betterment of the greater good.[104] Thus, the fairness concerns associated with retrospective allocation are not as broad or extreme as those associated with a completely random distribution of property.[105]

Now, consider windfalls and fairness under a system with no transition relief. An absence of transition relief means that societal actors who previously

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itself a thorny policy problem, given the possible variants and their potentially significant distributive impacts.").

An amusing popular culture example of this can be found in the cinematic comic romp, *It's a Mad, Mad, Mad, Mad World* (1963). There, a number of automobile drivers and passengers pull to the side of the road to find a dying man who describes where to find a large buried treasure. Once the man has died, a suggestion is made for all present to join forces, and then find and share the treasure. An argument over apportionment ensues, with suggestions made to base apportionment on a per capita basis, on a per vehicle basis (without regard to the number of passengers in each vehicle), and on the basis of contribution to actually having helped the dying man. In the end, discussions break down and the various individuals race to try to reach, and claim, the treasure first.

101. *See* Alliance Against IFQs v. Brown, 84 F.3d 343, 352 (9th Cir. 1996) ("This is a troubling case. Perfectly innocent people going about their legitimate business in a productive industry have suffered greater economic harm because the federal regulatory scheme changed."). The Ninth Circuit in *Alliance* considered, and rejected, a challenge to the allocation method by a group of vessel owners and lessees who received no quota shares for that reason. *See supra* text accompanying notes 64–65.

The court also considered a challenge by workers that the allocation of quota shares to owners and lessees but not workers was not, as the governing statute required, "fair and equitable." *See Alliance*, 84 F.3d at 348 (quoting 16 U.S.C. § 1851(a)(4)(A) (2006)). Though it described the argument as "sensible," the court proceeded to reject the argument, on two grounds. *Id.* First, the statute did not make the "fair and equitable" requirement the sole criteria with which the council had to comply. *See id.* at 348–49. Second, the council's logic that owners and lessees have put capital at risk and thus deserve quota shares was sound: "The Secretary thought that the problem of overfishing resulted more from investment in boats than occupational choices of fishermen, so the administrative remedy should be measured by ownership and leasing of boats." *Id.* at 349.

102. For example, someone who chases a fox all day could actually capture the fox; Post, in contrast, did not, as a result of Pierson's presence and quick actions. Pierson v. Post, 3 Cai. R. 175, 182 (N.Y. 1805).

103. *See supra* text accompanying notes 73–76.

104. *Cf. Alliance*, 84 F.3d at 350 ("The Secretary is allowed . . . to sacrifice the interests of some groups of fishermen, for the benefit as the Secretary sees it of the fishery as a whole.").

105. *See* GUIDO CALABRESI & PHILIP BOBBITT, TRAGIC CHOICES 41–44 (1978) (discussing fairness problems that inhere in lotteries and other completely random distributions).

engaged in the relevant behavior will have no advantage over newcomers.[106] From the perspective of newcomers, systems with no transition relief seem inherently fairer in that they remove the windfall that previous actors receive under other approaches.[107] Another understanding, however, views as justified at least some disparate treatment of previous actors, and thus does not view transition relief either as unfair or as bestowing a windfall. One such argument is grounded in economic fairness: Revesz and I have argued that it might be unfair not to protect (at least to the point of reasonable return) an actor's investment which, at the time it was made, complied with existing legal standards.[108] A distinct argument suggests that a desire to protect lifestyles and community cohesion, and to validate norms, may justify disparate treatment.[109] Perhaps the only problem is resource depletion, not the community's hold on resource access. Since, but for the depletion of the resource, the community would be left alone, why disturb the community's access if resource constraints can be imposed without causing such a disturbance?

These justifications for legal transition relief find support in the governmental response to the current financial crisis. The recent financial bailout[110] undermines the assumption upon which the law and economics argument against legal transition relief rests: that legal transition should be treated no differently from other transitions (such as economic and technological transitions), and the government generally does not offer relief from these other types of transitions.[111] The government has offered transition relief in response to the current economic crisis as a result of the perceived magnitude of the crisis and the possibility that numerous actors who had not contributed to the problems and had no direct connection to the crisis would suffer.[112] Assuming such a response is normatively justified, this suggests that

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106. *Cf.* Nathaniel O. Keohane, Richard L. Revesz & Robert N. Stavins, *The Choice of Regulatory Instruments in Environmental Policy*, 22 HARV. ENVTL. L. REV. 313, 348–51 (1998) (transition relief can provide barrier against entry that protects existing market actors).

107. *See* Heinmiller, *supra* note 53, at 450 (noting that an allocation process that provides permits at no cost to those who already engage in the activity to be regulated "provides stakeholders with a scarce and valuable asset that can potentially provide them with windfall financial gains if traded").

108. *See* Nash & Revesz, *supra* note 16, at 1730–31.

109. *Cf.* Heinmiller, *supra* note 53, at 461 ("Potential sellers of resource rights . . . may resist selling their rights despite anticipated windfalls because these rights form the fundamental basis of livelihoods, communities, and cultures that are valued beyond economic calculus."); Tierney, *supra* note 14.

110. *See* The Emergency Economic Stabilization Act of 2008, the Energy Improvement and Extension Act of 2008, and the Tax Extenders and Alternative Minimum Tax Relief Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765 (Oct. 3, 2008). For discussion, see, e.g., Rachel D. Godsil & David V. Simunovich, *Protecting Status: The Mortgage Crisis, Eminent Domain, and the Ethic of Home Ownership*, 77 FORDHAM L. REV. 949, 985–95 (2008).

111. *See supra* notes 70–71 and accompanying text; Kaplow, *supra* note 31, at 584–87.

112. *See* Godsil & Simunovich, *supra* note 110, at 993 ("Proponents of direct government intervention . . . note that banks are simply 'too integral a part of the global economy' to be left 'stew[ing] in the consequences of their own folly.'") (quoting Michael R. Sesit, *Subprime Mess*

the avoidance of substantial externalities may justify transition relief, including legal transition relief, as legal transition should be treated no differently from other types of transitions.[113]

The choice between a system with transition relief and one without it will turn on the particular circumstances and one's view as to whether disparate treatment is somehow justified.

3. *Administrative Ease and Costs*

For the government to allocate resource depletion rights on the basis of a traditional race to capture, it must gather data on the results of the race during the relevant time period. The introduction of retrospective allocation requires similar data, but at potentially greater cost given that the criteria may require historical data.[114] Moreover, the desire to gather more data than is necessary so as to avoid tipping the government's hand as to exactly which data will prove to be relevant may impose marginally greater costs than a simple race to capture system.

A system that avoided transition relief by allocating depletion rights based on an auction would impose the costs of conducting the auction. Such costs might be minimized by outsourcing the auction.[115]

4. *Efficiency Gains and Losses*

To the extent that transaction costs are low and depletion rights are tradable, the choice of initial allocation method will not impose large efficiency costs; trading will ultimately lead the permits to those who value them most.[116] If either of these assumptions does not hold, then the choice of initial allocation method may well matter. If trading cannot be relied on to allocate the permits efficiently, the farther the initial allocation is from the efficient allocation, the greater the efficiency cost imposed.

An auction will allocate the permits efficiently.[117] By contrast, there is no reason to think that either a race to capture or retrospective allocation will achieve that goal, although retrospective allocation may perhaps do better to the extent that it takes into account historical information and larger amounts of data. On this measure, then, a system with no transition relief is preferable.

Highlights Need for Tough Rules, BLOOMBERG, Feb. 28, 2008, http://www.bloomberg.com/apps/news?pid=20601039&refer=columnist_sesit&sid=a2um5kMtLCLM#).

113. *See* Dale Thompson, Regulation of Hedge Funds: Lessons from Market Failures, Business Organizations, and Environmental Policy (Oct. 4, 2008) (unpublished manuscript, on file with author). Thompson proceeds to argue that financial regulators might learn lessons from environmental regulation, where regulation is directed at minimizing and internalizing externalities. *See generally id.*

114. *See supra* text accompanying notes 40–41, 43, 47 (describing existing programs).

115. *See* Nash, *supra* note 7, at 490 (noting that EPA has arranged for the Chicago Board of Trade to handle the limited annual auction of sulfur dioxide emission allowances).

116. *See supra* note 8 and accompanying text.

117. *See, e.g.*, Keohane, Revesz & Stavins, *supra* note 106, at n.19.

5. *Summary*

Table 1 summarizes the likely benefits and costs across each dimension for each allocation option. Retrospective allocation seems preferable to reliance on a typical race to capture. The choice between retrospective allocation and having no transition relief is closer. In particular, the issue of whether it is seen as appropriate or inappropriate to treat preexisting actors differently from newcomers looms large, especially where it is likely that the initial allocation will not impose large efficiency costs. The choice may vary, then, from setting to setting; for example, retrospective allocation may have greater normative attraction in the setting of fishing quotas that will affect a community than in the setting of air pollutant emissions allowances that will affect a broad industry.

Table 1. Comparison of costs imposed by various systems of allocation

	Race to Capture	Retrospective Allocation	No Transition Relief
Incentive Effects	Suboptimally high behavioral adjustments; no incentive to anticipate new legal regime.	Appropriate behavioral adjustments; no incentive to anticipate new legal regime.	Incentive to anticipate new legal regime, although perhaps also disincentive to make large investments in reliance on current regime.
Windfall Allocation and Fairness	Considerable potential for windfalls; considerable potential for unfairness.	Minimal potential for windfalls (other than favorable treatment of existing actors over newcomers); moderate potential for unfairness.	No windfalls; potential for unfairness for those who relied on earlier regime.
Administrative Ease and Costs	Cost of measuring and tabulating who won the race.	Cost of measuring and tabulating data related to selected criteria.	Costs of auction.
Efficiency Gains and Losses	Potentially high losses if there is no trading or transaction costs are high.	Potentially sizeable losses if there is no trading or transaction costs are high.	No losses.

II. THE EVOLUTION OF RETROSPECTIVE ALLOCATIONS

In this Part, I first identify those settings in which one might expect retrospective allocation regimes to emerge and how one might expect such regimes to evolve. I then consider how public choice concerns might square with the evolutionary story.

A. *The Evolution of Retrospective Allocations as Strategic Responses to Grandfathering*

The evolution of retrospective allocations raises two questions. First, why has retrospective allocation tended (so far, at least) to evolve from the race to capture in the setting of the allocation of publicly-held natural resources?[118] And, second, how does the retrospective allocation retain the edge created by legal uncertainty once its implementation becomes foreseeable?

To answer the first question, consider those settings in which open resource access and a rule of first possession is likely to function well, as opposed to those where it is most likely to succumb to overinvestment and suboptimally high depletion of the resource in question. Open access and first possession should work well where the resource is plentiful or where comparatively few actors desire an interest in the resource.[119] For example, it should suffice where participation costs are quite heterogeneous among societal actors; there, only those who face comparatively lower costs will partake.[120] The same should be true where, even if many actors face similar costs, those costs are high and relatively few of them have the financial resources to meet the initial investment necessary to participate.[121]

In contrast, scenarios in which open access combined with a rule of first possession are more likely to break down are those in which a larger number of actors participate, and where the resource is not plentiful enough to meet the

118. *See supra* text accompanying notes 32–47.

119. Lueck, *supra* note 20, at 405 ("The rule of capture may not produce severe dissipation when there are but a few users or when there are 'plenteous' goods. Here, open access may persist optimally because few people are exploiting the resource, or because marginal use costs are high, or both." (footnote omitted)); Johnston, *supra* note 21, at 859 ("In the natural resource area, whether th[e] problem [of rent dissipation and excessive entry] arises depends very much upon how abundant resources are relative to the number of people racing to acquire rights."); *id.* at 860 ("When each user is small relative to the total number of users, they all ignore the marginal effect of their increased harvest on other users and increase harvest levels until average product equals average cost.").

120. *See* Lueck, *supra* note 20, at 400 ("[A]s the heterogeneity of claims . . . increases the level of dissipation will decrease. In the extreme case, where just one person has costs less than the net present value of the asset's flow, the first-best outcome is achieved. In this case, only one person finds it worthwhile to enter the race, so there is no dissipation." (footnote omitted)); *see also* Michael Abramowicz, *A Theory of Copyright's Derivative Right and Related Doctrines*, 90 MINN. L. REV. 317, 350 (2005) ("[I]f . . . parties are not identically situated, rent dissipation may be reduced or eliminated. To take an extreme example, if it is apparent that, regardless of the efforts of others, one party will definitely arrive first and capture all of the gold, then no one else will enter the race." (footnote omitted)).

121. *See* Abramowicz, *supra* note 120, at 350.

demands of all participants.[122] As the costs to capture the resource become more homogeneous, the collapse of first possession to a degenerative race to capture becomes more likely.[123] But the situation may be even worse where, over time, costs cycle from homogeneous to heterogeneous and back again. Consider a situation where some actors gain a temporary cost advantage (and thus for that period perform better in the race and capture more of the resource), but after a time other actors are able to invest money and achieve similar cost advantages. This dynamic means that societal actors will be encouraged to sink more and more money into pursuing the resource in question, only to have the return on those investments dissipate over time and to face renewed incentives to invest even greater sums.[124]

A rule of first possession gives rise to especially pernicious incentives when it is used to allocate property previously held in commons by stakeholders, or held by the government subject to open-access capture. The tragedy of the commons arises because prospective participants in the race to capture have a strong incentive to engage in the race even if it would be in everyone's self-interest to abstain.[125] Any person with access to the commons can claim individual ownership over property previously held in commons simply by capturing it.[126] A rule of first possession as applied to resources held in commons or under open access often also has another feature that precipitates the collapse to a race for the resource: the likelihood that, over time, cost advantages can be eliminated by further investments.[127] To the

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122. *See, e.g.*, Tierney, *supra* note 14 (discussing effort creep of too many participants in New England fishery to capture too few fish).

123. *See* Lueck, *supra* note 20, at 399.

124. *See id.* at 401 ("If individual cost advantages can be eliminated through investment in the techniques of acquiring property rights, then all methods of initially establishing property rights will completely dissipate the value of the resource." (footnote omitted)).

125. *See infra* note 128.

126. The captor loses an undivided ownership interest in the captured property, but so too does everyone else who has a stake in the commons. In essence, the captor's gain of sole, individual ownership of the captured property far outweighs the loss of the undivided interest. Further, all other persons with a stake in the commons contribute to the captor's gain by in effect losing their undivided interests in the captured property. In this way, the captor imposes externalities on the other commons stakeholders.

The tragic scenario is likely to arise even where it is in no one's interest to engage in capture, because of the difficulty in reaching and enforcing an agreement not to race. For example, it may well be that the property held in commons will become more valuable (even after factoring in time discounting) if allowed to remain in commons. Still, each individual has a strong incentive to defect, capture property, reap gain for herself, and impose externalities on everyone else. (The tragedy of the commons can thus be seen as a multiplayer prisoners' dilemma.) In essence, even if the property would be worth more to me (and everyone else) later, because the property may not be around at the later time, I have an incentive to capture as much of the property as possible now. Because each individual has a strong incentive to defect—and because it takes only one erstwhile defector to create large incentives for others to defect—economic theory predicts that, absent a robust enforceable agreement (or equivalently strong community norms), all stakeholders will engage in the race to capture. *See generally* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968).

127. *See, e.g.*, Tierney, *supra* note 14.

extent that one actor obtains a cost advantage, competitors can eliminate that advantage by also making similar investments. It is in this way that all fishermen gradually obtain larger vessels.

Applications of a rule of first possession to natural resource stocks are less likely to lead to windfall allocations and more likely to be escalated by the participants toward a race for the resource. Natural resource stocks generally require that a substantial investment be made in order to compete for the resource. In such instances, the only participants in the race will be those who are ready, willing, and able to make a relatively sizable initial investment. The upfront cost reduces the possibility of windfall allocations insofar as the upfront investment makes it more likely that only deserving parties will be allocated property rights.[128] However, the upfront investment is likely to increase the likelihood of escalation; as a result, pressure on the resource continues to increase.[129] These scenarios also evolve from a simple rule of first possession to a grandfathering regime. In light of the reasonable expectation that societal actors may anticipate (or at least over time come to anticipate) such regulation,[130] one might expect the retrospective allocation regimes to take some hold.

Fisheries provide an example of such a setting. Initially, the resource stock is adequate to satisfy all race participants. Over time, however, as the stock starts to dwindle, the efforts needed to capture fish—and the costs of doing so—become greater. Eventually, some actors invest larger sums so as to obtain advantages, such as larger vessels and better fishing equipment.[131] Cost heterogeneity allows for those participants to capture more fish. But this advantage is short-lived, since other participants can match or outdo them by also purchasing new equipment. Cost homogeneity may return, but at a higher cost level, and with the resource stock at a lower level and facing even greater drain. Windfall property allocations will be low at this point, but the number of race participants committed (by virtue of sunk costs) to continued escalation will be large.[132]

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128. *Cf.* Kades, *supra* note 91, at 1537 ("When locating minerals was largely serendipitous, as opposed to the result of the significant investments utilized in modern times, letting mineral wealth essentially fall into the lap of the purchaser of well-situated farm acreage did amount to a windfall.").

129. *See, e.g.*, Tierney, *supra* note 14.

130. *See supra* text accompanying notes 66–69.

131. *See* Hope M. Babock, *Grotius, Ocean Fish Ranching, and the Public Trust Doctrine: Ride 'Em Charlie Tuna*, 26 STAN. ENVTL. L.J. 3, 11–12 & n.30 (2007).

132. *See, e.g.*, Tierney, *supra* note 14 (discussing the continuing deterioration of a New England fishery due to effort creep, and contrasting it with the wealth of fishermen in an Australian fishery that adopted fishing quotas).

Professor Jason Johnston argues that the problems of rent dissipation, excessive entry, and resource depletion are not the result simply of the race to capture structure. He argues that the depletion in resource level should, over time, discourage prospective entrants from joining the race and existing race participants from further investments. *See* Johnston, *supra* note 21, at 860–98. The real problem, Johnston continues, is government policies that encourage heavy investments and sunk costs into racing for particular resources. *Id.* at 857 ("[T]he recommended policies—such as those that encourage

It thus is not surprising that the method used to allocate precious natural resources evolve away from a simple rule of first possession.[133] It is logical, moreover, for such settings to evolve toward a more nuanced race to capture grandfathered access rights. It makes sense to limit access to the resource. By limiting access to actors based on historical performance, it is possible both to limit access to the resource to those who deserve such access, but also to allocate the property to societal actors without encouraging further behavioral modifications or putting the resource stock at greater risk. These goals can be achieved by superimposing a race to capture grandfathered access rights onto existing race to capture resources, but—importantly—without divulging the first race to those participating in the second until after it is over.

A second natural home for retrospective allocation, identified in Part I.A, occurs when a resource is depleted as a byproduct of a societally beneficial activity, and the resource is again subject to open access and a rule of first possession. Open access is maintained in such a setting because there is no way (even if there was an incentive) to stop others from depleting the resource.[134] Indeed, at low levels of resource depletion—presumably the case during the growth of the societally beneficial activity—there exists no incentive to restrict access; use of the resource seems nonrivalrous. Escalation in resource depletion results from increased demand for the product of the societally beneficial activity (as compared to demand for the resource itself). Here, as in the first setting, it becomes important to restrict access to and depletion of the resource.[135] Again, it is logical to reward those who have previously achieved success at engaging in the beneficial activity while drawing down the resource efficiently and responsibly.[136]

The foregoing makes clear how retrospective allocation first appears on the regulatory scene. After that initial stage, however, and once retrospective allocation begins to gain hold, a second question arises: to the extent that retrospective allocation relies on legal uncertainty for its effectiveness, how can it remain effective once societal actors can anticipate its implementation?[137] The solution demands continued adjustment and strategic responses. The problem with the race to capture access rights is that societal actors come to

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harvesters to avoid sunk costs in harvesting particular species and systems, and that develop economic alternatives to harvest—have been almost the opposite of those that governments have actually adopted. . . . [T]he major reason for the collapse and imperilment of species and ecosystems is not the bioeconomic dynamic set up by the open access rule of capture, but rather government policies that have systematically subsidized natural resource use and thereby discouraged exit from extractive (harvesting) industries.").

133. *See* Lueck, *supra* note 20, at 395 ("I conclude that actual legal rules of first possession anticipate the potential for dissipation and develop to limit it.").

134. *See, e.g.*, Charlotte Hess & Elinor Ostrom, *Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource*, 66 L. & CONTEMP. PROBS. 111, 121 (2003).

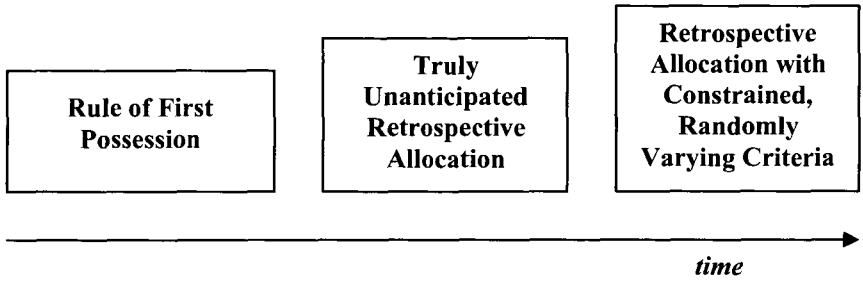
135. *See supra* note text accompanying notes 28–30.

136. *See supra* note 30 and accompanying text.

137. In addition, another question arises: if the race to capture will evolve, why should we expect it to evolve toward retrospective allocation? I address this question in Part II.B.

understand the terms of the race and adjust their behavior accordingly (and perhaps inefficiently) to win that race. The evolution to retrospective allocation is a strategic response to that problem, but the very circumstances that made the evolution to retrospective allocation necessary suggest that actors also will respond strategically to retrospective allocation. In context, actors will try to anticipate implementation of retrospective allocation schemes and engage in behavior designed to capture as many grandfathered rights as possible. As discussed in Part I and summarized in Figure 1, the logical response to excessive behavioral modification is to have the setting evolve, first to a truly unanticipated retrospective allocation scheme and then to a retrospective allocation scheme with constrained, randomly varying criteria.[138] In the next Part, I explain why this logical evolution is likely to take place, at least in some circumstances.

Figure 1. Evolution of retrospective allocation



B. *Legislative and Regulatory Action, Public Choice, and the Evolution of Retrospective Allocation*

In this Part, I address the interplay between the evolution of retrospective allocation and public choice theory. In Part II.A, I characterized retrospective allocation as a deliberate response to strategic behavior undertaken in response to the race to capture. Left unasked—and unanswered—was exactly why the strategic move from the race to capture to retrospective allocation would take place. After briefly addressing normative concerns, I turn to a public choice analysis.

As explained above, transition relief may be normatively desirable in some instances. The creation of optimal incentives and concerns about fairness may argue in favor of grandfathering.[139] A government motivated by such

138. *See supra* the text accompanying notes 73–76.
139. *See supra* Part I.B.5.

normative considerations should prefer retrospective allocation—and ultimately retrospective allocation with constrained, randomly varying criteria—to a rule of first possession. Importantly, however, the question of whether retrospective allocation is preferable to having no transition relief is normatively debatable, and may vary with the particular factual setting.

Implicit in Part II.A was an assumption that, in deciding how to respond to societal actors' strategic responses to the race to capture, the government would act in the best interests of society and exogenously to the interest of the societal actors who would be adversely affected by government action. Regardless of whether retrospective allocation is the best normative solution, however, this assumption is unrealistic.[140] Assuming that the absence of transition relief is normatively preferable, the dearth of tradable permit schemes that rely on permit auctions[141] suggests the strength of the public choice prediction: those that already hold a valuable right from which they are extracting rents will do all they can to retain that right.[142] Specifically, they will lobby the government not to pursue an adverse strategy. Public choice theory predicts that such actors will be successful: often, they will be able quickly to constitute themselves as a powerful interest group.[143] The question arises, then, as to why government seems willing and able to move from a rule of first possession to a system of retrospective allocation, but not all the way to an auction system.

An explanation for the desuetude of auctions is not hard to find. Public choice theory anticipates that, in moving away from first possession and the race to capture—that is, away, from an open-access regime in which everyone has the opportunity to capture and thus obtain property—toward a system in which the right to obtain additional property will be restricted, the government will have to compensate in some way the powerful interests that otherwise would suffer under the restrictions.[144] Thus, the use of grandfathered rights, as opposed to the use of an auction, is not surprising.[145] Grandfathered rights are a pure form of pork.[146] As an added bonus to politicians, grandfathered rights

140. *See generally* Zywicki, *supra* note 4.

141. *See, e.g.*, Thomas W. Merrill, *Explaining Market Mechanisms*, 2000 U. ILL. L. REV. 275, 284; Keohane, Revesz & Stavins, *supra* note 106, at 316. This may be changing, however. *See, e.g.*, Dean Scott, *California Urges Auction of Allowances Under Federal Cap-and-Trade Legislation*, DAILY ENVT. REP. (BNA), Oct. 9, 2007, at A-5.

142. *Cf.* RAYMOND, *supra* note 36, at 18–19 ("Any limitations on use [of previously open-access resources] . . . create winners and losers: people who get more access versus those who get less, or people who pay more for their use versus people who pay less.").

143. *See* Keohane, Revesz & Stavins, *supra* note 106, at 347–53. *See generally* MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS (1965).

144. *See* Levmore, *supra* note 81, at 1666–67 (describing transition relief as a way to compensate politically powerful interests who otherwise would stand to lose under, and therefore would oppose, a new legal regime).

145. *See* Keohane, Revesz & Stavins, *supra* note 106, at 348, 353.

146. *See* Merrill, *supra* note 141, at 287–88 (Firms that engage in polluting activities "will exert strong political pressure in opposition to any proposal for Pigouvian taxes or auctioned permits but [are] likely to have a much more equivocal response to grandfathered permits."); Heinzerling, *supra* note 12, at 328–33 (explaining how Congress, in enacting the 1990 Clean Air Act Amendments, distributed

also protect existing interests against new entrants.[147] The use of auctions makes explicit the balance of benefits against the costs of environmental regulation, something that the public generally does not want to think is driving environmental regulation.[148]

Even if the attractiveness of some form of grandfathering from a public choice perspective is clear, a narrower question still remains: how does public choice theory explain a move from a race to capture to a retrospective allocation regime (whether pure or with constrained, randomly varying criteria)? Why, in other words, would the government not just stick with awarding grandfathered rights predictably, in accordance with immediate past performance (or even a set formula), so that rents can most effectively be collected?

The answer to this narrower question is more nuanced. First, public choice theory itself may provide some explanation for a shift toward retrospective allocation regimes. A truly unanticipated retrospective allocation scheme seems to allow government to confer benefits directly on an existing, organized group of societal actors. But retrospective allocation with constrained, randomly varying criteria may allow for virtually the same result while simultaneously allowing the government to claim some sense of both transparency and fairness. Simply listing recipients of property rights in legislation raises questions about the choice of recipients; but identifying objective criteria by which rights are to be allocated creates an aura of objective fairness.[149] The public values procedural justice undertaken by the government[150] and retrospective allocation enhances the perception of procedural fairness.[151] Retrospective allocation thus may successfully garner enough legislative support from different sides while other, more extreme (and perhaps more desirable) proposals might not.[152] For legislators and interest groups,

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sulfur dioxide emissions allowances to special interest groups); *cf.* Lesley K. McAllister, *The Overallocation Problem in Cap-and-Trade: Moving Toward Stringency*, 34 COLUM. J. ENVTL. L. 395, 398–410 (2009) (arguing that cap-and-trade programs generally allocate more allowances than are environmentally and economically desirable).

147. *See* Keohane, Revesz & Stavins, *supra* note 106, at 350–51.

148. *See id.* at 359 (noting that, insofar as explicit cost-benefit analyses are not preferred by voters, "[g]randfathered permits fare better on the visibility criterion than auctioned permits or taxes, because no money is exchanged at the time of the initial allocation."). *See generally* Nash, *supra* note 6.

149. *Compare* Clean Air Act § 404(e)(3) tbl. A, 42 U.S.C. § 7651c(e)(3) tbl. A (2006) (table listing assignment of sulfur dioxide emissions allowances under the initial phase of the national sulfur dioxide trading regime), *with id.* § 405, 42 U.S.C. § 7651d (2006) (setting forth criteria as basis for allocation of allowances under second, major phase of the national sulfur dioxide trading program).

150. *See, e.g.*, Tom R. Tyler, *Governing amid Diversity: The Effect of Fair Decisionmaking Procedures on the Legitimacy of Government*, 28 LAW & SOC'Y REV. 809 (2004) (explaining that people consider procedural justice in evaluating matters of national policy and legislative action).

151. *See supra* text accompanying note 104–105.

152. *Cf.* Brett H. McDonnell, *Two Cheers for Corporate Law Federalism*, 30 J. CORP. L. 99, 137–38 (2004) (discussing how, because of the multiplicity of actors involved in federal lawmaking, the status quo of letting Delaware state law effectively set the standard may persist because some federal actors may check the attempt by other federal actors to change the field at the federal level); David S.

retroactive allocation may be preferable to the status quo (that is, the race to capture) and also preferable to more extreme regulatory action such as the introduction of auctions.

A more optimistic public choice story[153] would focus on settings where particularly close-knit communities will be affected by the government regulation. Because they are close-knit, the communities are able to effectively organize—perhaps with the help of political entrepreneurs[154]—and thus wield sufficient political power to retain access rights within the community. At the same time, strong community norms militate against purely buying off powerful interests, and instead favor the more moderate result of retrospective allocation.

Public choice theory may not hold full sway, however, where race participants—those who previously had access to, and freedom to capture, the resource—have a compelling and politically acceptable claim to continued resource access.[155] For example, where members of a fishing community have devoted time and effort to fishing—and, indeed, have made fishing a veritable (and venerable) way of life—the government may recognize that fully terminating those fishing rights and allowing them to be auctioned off to others would be unfair, and perhaps untenable.[156] Indeed, a public-private partnership may succeed at governing the commons in this setting. Professor Elinor Ostrom has argued private groups may successfully manage a commons without government intervention in some settings.[157] Situations where the government intervenes yet cedes considerable regulatory power to local group actors—such as is the case with Congress leaving considerable power with regional fisheries councils[158]—may be described as hybrid settings, in which limited government

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Law & Lawrence B. Solum, *Judicial Selection, Appointments Gridlock, and the Nuclear Option*, 15 J. CONTEMP. L. ISSUES 51 (2006) (explaining how changes to procedures governing the judicial appointments process must satisfy various factions in the Senate as well as the Executive to some extent). I am grateful to Amitai Aviram for suggesting these analogies.

153. Compare, in this regard, Saul Levmore's dichotomy between pessimistic stories for the evolution of property rights that are grounded public choice, and optimistic stories that are grounded in efficiency. *See* Saul Levmore, *Property's Uneasy Path and Expanding Future*, 70 U. CHI. L. REV. 181, 182–84 (2003).

154. *See* Jonathan Remy Nash, *Public Choice versus Efficiency: The Case of Property Rights in Road Traffic Management*, 49 B.C. L. REV. 673, 682–83 (2008) (describing how political entrepreneurs can harness public opinion).

155. *See* RAYMOND, *supra* note 36, at 23–24 ("Even political scientists working on public choice theory, with its models of political behavior based on self-interest, have noted the likely influence of norms on legislative outcomes."); *id* at 29–33 (noting that equity plays a larger role in property allocation schemes than most commentators acknowledge).

156. *See supra* text accompanying note 109.

157. *See generally* ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 90 (1990); *see also* Elinor Ostrom, *Reformulating the Commons*, 6 SWISS POLI. SCI. REV. 29, 40–43 (2000).

158. *See supra* text accompanying note 38.

intervention combines with and empowers local interests to achieve effective governance.[159]

One narrative or another may hold greater sway in different settings. For example, the community-centered nature of fishing in many areas suggests that either the optimistic public choice story or a norm-based story explains the emergence of retrospective allocation. On the other hand, the pessimistic public choice power may have more explanatory force in the setting of the national sulfur dioxide emissions allowance program. Indeed, this conclusion accords with Professor Lisa Heinzerling's explication of how Congress arrived at the allocation system under that program.[160] The Kyoto Protocol's allocation system may be a mix of stories. The allocation of greenhouse gas emissions quotas in proportion to the scope of industrialized nations' prior polluting histories seems to reflect the public choice power of larger, industrialized nations.[161] At the same time, the allocation of quotas to developing nations, such as former members of the Soviet Union and Soviet bloc, in excess of those nations' capacity to pollute[162] may in fact reflect a tacit way to effect desirable foreign aid—insofar as the nations may sell the excess emissions quotas—that could not otherwise be accomplished.[163]

In sum, strong community needs may override public choice in some settings. Alternatively, the strong community interests may be powerful enough to win the day on a public choice account. In other settings, public choice suggests that retrospective allocation may be little more than a cover for effectively allocating grandfathered rights to powerful interest groups.

III. RAMIFICATIONS

In this Part, I consider some ramifications of my analysis of retrospective allocation. I first offer some insights that may inform the law and economics literature on transition relief. I next consider how retrospective allocation

159. Such a solution can be juxtaposed with settings—such as military base closure decisions that are delegated by Congress to independent commissions—where the legislature cedes power to an independent actor in order to avoid the political pressure that would be brought to bear were local interests free to lobby the body that is to make national allocation decisions. In such settings, the legislature cedes power both to maintain the integrity of the process and to avoid being dragged into battles as to which there will ultimately be losses imposed on some localities. For discussion, see Natalie Hanlon, *Military Base Closings: A Study of Government by Commission*, 62 U. COLO. L. REV. 331 (1991). For discussion of the effective use of ad hoc commissions to address politically challenging issues, including base closures, see Bradford C. Mank, *Protecting the Environment for Future Generations: A Proposal for a "Republican" Superagency*, 5 N.Y.U. ENVTL. L.J. 444, 489 (1996).

160. *See* Heinzerling, *supra* note 12, at 328–32.

161. *Cf.* Bruce Yandle & Stuart Buck, *Bootleggers, Baptists, and the Global Warming Battle*, 26 HARV. ENVTL. L. REV. 177, 182, 190 (2002) (describing bubbles under the Kyoto Protocol as a matter of political economy).

162. *See* Nash, *supra* note 7, at 522–23 (describing the allocation of Kyoto Protocol emissions quotas to former Soviet bloc countries and the associated issue of selling so-called "hot air" emissions quotas).

163. *See id.* at 534.

methods might be employed to formulate efficient liability schemes. Third, I explain how retrospective allocation should play a role in an area of growing importance: the development of cap-and-trade systems to address global climate change. Last, I explore the possible application of the lessons of retrospective allocation—and especially the role of uncertainty and the importance of past behavior—to immigration law and the assessment of educational institutions.

I begin with some insights that may inform the law and economics literature on transition relief. The general lesson that the literature offers is that transition relief is undesirable because it inefficiently discourages societal actors from anticipating legal change.[164] The case of retrospective allocation suggests, however, that it is *not* desirable for societal actors to anticipate transition relief too clearly, lest they too greatly alter their pre-regime behavior. Legal uncertainty, in other words, is not always a bad thing in connection with regime changes.[165]

The literature on legal transitions also sometimes accepts grandfathering, but often simply as a necessary political evil.[166] Retrospective allocation, however, may be a form of allocating grandfathered rights that has justifications grounded in both concern over incentive effects and concern over fairness. These justifications do not mean, however, that reliance on retrospective allocation will always be desirable. Rather, it seems that the normative decision should be made by examining the underlying reasons for adopting retrospective allocation. For example, the use of retrospective allocation seems to have been normatively justified for fisheries, yet less so for sulfur dioxide allowances.[167]

I next consider how retrospective allocation methods might be employed to formulate efficient liability schemes. Professors Robert Cooter and Ariel Porat have explained that it is difficult to structure liability schemes where multiple actors contribute to a single social harm that is verifiable but where

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164. *See supra* notes 70–72 and accompanying text.

165. There are other settings in which legal uncertainty may discourage behavioral modifications that would otherwise be suboptimally high. Consider the question of why the doctrine of adverse possession does not overly encourage aggressive trespassers to attempt to obtain lands of others. One answer may be the unpredictable likelihood of success, even across numerous attempts at adverse possession. First, true owners' efforts to reclaim the land may be difficult to predict. Second, application of the doctrine of adverse possession is sufficiently unclear that one can rarely expect success with any degree of certainty. *See* Lee Anne Fennell, *Efficient Trespass: The Case for "Bad Faith" Adverse Possession*, 100 NW. U. L. REV. 1037, 1062 (2006) (noting that the outcome of adverse possession claims are rarely certain, in particular because "the successful adverse claimant [must] establish a variety of elements, each of which is open textured and subject to judicial interpretation").

Consider as well the thesis that incomplete compensation for takings claims leaves property owners sufficiently uncertain so as to cap suboptimally high investment. *See* Thomas W. Merrill, *Incomplete Compensation for Takings*, 11 N.Y.U. ENVTL. L.J. 110, 132–33 (2002).

166. *See supra* note 81.

167. *See supra* text accompanying notes 155–163.

each actor's contribution is not verifiable.[168] They explain that a strict liability scheme gives rise to incentives that lead to two undesirable effects. First, injurers have "an incentive to collude and reduce social harm below the social optimum":[169] since either could be liable for the entire harm (even beyond their actual share), they might agree to reduce total harm. Second, "[s]ince participants are liable for more harm than the harm they cause, too few will participate," meaning that there will be "too little participation in the activity that triggers liability."[170] Cooter and Porat recommend instead a scheme under which each injurer would be liable for the excess of the total actual harm over the total optimal harm.[171] Cooter and Porat note that a system that imposes proportional liability on each injurer may also be efficient, but only to the extent that "the proportionate rule is imposed in proportion to the exact risks created."[172] A liability system that incorporates injurers' actual activities can come close to achieving such a proportionate rule. At the same time, however, if injurers know that such a system is pending, they have an incentive to adjust their activities so as to reflect a lower proportionate contribution to total risk.[173] A retrospective allocation system substantially minimizes injurers' ability to adjust their behavior in anticipation, and thus is more likely to rely on data that leads to an efficient outcome.[174]

I consider next the importance of retrospective allocation to an issue of growing stature: the design of cap-and-trade systems to address global climate change.[175] While many commentators continue to prefer auctions,[176] it seems that such systems will continue to distribute at least some emissions permits to existing polluters at no charge for the foreseeable future.[177] To the extent that such an approach is included in a cap-and-trade system, it seems that retrospective allocation should be used to avoid creating perverse incentives. For example, a program that distributes permits to individual societal actors based on current activities creates an incentive for those actors to increase their activities in anticipation of the regulation—and thus to worsen global climate change—in order to obtain more permits.[178] Professors Eric Posner and Cass Sunstein explain how the announcement of a treaty creating a global cap-and-

168. *See* Robert Cooter & Ariel Porat, *Total Liability for Excessive Harm*, 36 J. LEG. STUD. 63 (2007).

169. *Id.* at 67.

170. *Id.*

171. *See id.* at 68–70.

172. *Id.* at 70 & n.8.

173. *See id.* at 70.

174. I am grateful to Ariel Porat for this suggestion.

175. *See, e.g.*, Posner & Sunstein, *supra* note 54, at 52–54; Robert R. Nordhaus & Kyle W. Danish, *Assessing the Options for Designing a Mandatory U.S. Greenhouse Gas Reduction Program*, 32 B.C. ENVTL. AFF. L. REV. 97, 120–45 (2005).

176. For discussion, see Nordhaus & Danish, *supra* note 175, at 139–40.

177. *See id.* at 135–39; Stavins, *supra* note 7, at 320–21 (2008) (advancing proposal for system that employs both auction and grandfathering of permits, with grandfathering phased out over time).

178. *See* Nordhaus & Danish, *supra* note 175, at 134 & n.174.

trade system that allocated permits on a per capita basis would give rise to two undesirable incentives: it would encourage population growth (with concomitant adverse consequences for global climate change and for the environment generally) and discourage economic growth among developing nations.[179] The possibility of retrospective allocation also can be used to encourage societal actors to engage in behavior that will reduce greenhouse gas emissions even before a treaty takes effect, by offering such actors the possibility of earning credits that can be traded once the cap-and-trade system becomes effective.[180]

I turn now to the possible application of the lessons of retrospective allocation—and especially the role of uncertainty and the importance of past behavior—to areas outside natural resource allocation. Consider first immigration law, where Congress occasionally chooses to grant amnesty to individuals who have immigrated to the country illegally. The decision of whether to grant asylum to individuals who have entered the United States illegally has turned (and may again turn) on the behavior of applicants in the years before the requirements for asylum are formulated.[181] The decision to grant amnesty to some illegal immigrants has been tied (and would likely again be tied) to a future policy of further restricting illegal immigrant entry and/or greater enforcement of existing laws against illegal immigrants.[182] As such, the notion of announcing the asylum requirements for illegal immigrants *in advance*—enter the country today and, if you spend the next five years here safely without being deported, you will be eligible for naturalization—would be contrary to the government's overarching intent as it likely would encourage more people to attempt to enter the country illegally so as to try to satisfy the requirements. One can see elements analogous to retrospective property allocations in such amnesty programs, in that immigrants who enter the country

179. *See* Posner & Sunstein, *supra* note 54, at 77–79.

180. *See id.* at 78 & n.61; John H. Cushman, Jr., *Industries Press Plan for Credits in Emissions Pact*, N.Y. TIMES, Jan. 3, 1999, sec. 1, at 1. *Cf.* James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870 (2005) (arguing in favor of markets that pay property owners for steps taken that provide valuable services to ecosystems). In keeping with the general notion of retrospective allocation, the precise criteria according to which credits will be allocated should remain unclear, lest there be too much effort either on reducing emissions or on lobbying for the creation of credits. *Cf.* Cushman, *supra* (describing substantial industry efforts to have credits included in domestic implementation of Kyoto Protocol). Policymakers also may be concerned that having the government pay for past emissions reductions may be perceived by some as a commodification of the environment, with a resulting reduction in societal actors' willingness to engage in environmentally friendly behavior voluntarily and at no charge. For discussion, see Nash, *supra* note 6, at 331–32.

181. *See, e.g.*, Immigration Reform and Control Act of 1986, PUB. L. NO. 99-603, 100 Stat. 3359 (1986) (establishing a one-year amnesty period during which illegal immigrants who had lived and worked in the United States continuously since 1982 could apply for lawfully admitted temporary residence status).

182. *See, e.g.*, Katherine D. Black, Stephen T. Black & Ryan H. Pace, *Is the IRS the Solution to Illegal Immigration?*, 35 WM. MITCHELL L. REV. 309, 315–16 (2008); John Cornyn, *Immigration Reform: Back to the Future*, 115 YALE L.J. POCKET PART 112 (2006).

illegally do not learn the precise terms under which amnesty will be granted until after the relevant time period has lapsed. In effect, the decision to base asylum on past behavior mirrors the decision to allocate grandfathered rights based on past behavior under retrospective allocation.

Next, consider the question of how to evaluate educational institutions. One answer is simply to announce a set of objective criteria and then apply them. *U.S. News & World Report* uses this approach in its rankings of U.S. law schools.[183] The rankings have been criticized for both generating undesirable incentive effects[184] and, by encouraging all law schools to focus all their resources on particular factors, reducing the variety among law schools.[185] Both these outcomes can be seen to turn on whether *U.S. News & World Report*'s criteria are seen to be certain. The lesson of retrospective allocation suggests another alternative: random variation of the criteria. The injection of uncertainty should discourage suboptimally high behavioral modification, and should not encourage excessive uniformity.[186] Indeed, some national academic evaluation procedures have taken such an approach.[187]

Finally, consider the growing reliance on objective "indicators" to evaluate countries' compliance with international human rights treaty

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183. "While some adjustments have been made in the methods used to construct the [U.S. News & World Report] rankings, their basic structure has remained the same." Michael Sauder, *Strength in Numbers? The Advantages of Multiple Rankings*, 81 IND. L.J. 205, 208 (2006).

184. Professor Jeffrey Stake explains:

> If important ranking systems include a given factor, schools will shift resources to improving that factor and away from factors that count for less in the rankings. This raises the issue of whether those changes in resource allocation improve legal education. If there was no systematic bias against an included factor before the rankings shifted incentives, the rankings push spending on that factor beyond the optimum. The rankings cause schools to devote too many resources to some goals and too little to others. According to Dean Kramer of Stanford Law School, "You distort your policies to preserve your ranking, that's the problem."

Jeffrey Evans Stake, *The Interplay between Law School Rankings, Reputations, and Resource Allocation: Ways Rankings Mislead*, 81 IND. L.J. 229, 232 (2006). *See id.* at 232–42 (delineating incentives to which the U.S. News & World Report ranking system gives rise); *see also* Sauder, *supra* note 183, at 211 ("[T]he *U.S. News* ranking has clearly altered the distribution of resources—resources of time, money, and attention—within law schools."); Wendy Nelson Espeland & Michael Sauder, *Rankings and Reactivity: How Public Measures Recreate Social Worlds*, 113 AM. J. SOCIOLOGY 1, 25–29 (2007) (describing how law schools reallocate resources in response to rankings); *id.* at 29–33 (discussing how law schools try to game the rankings systems).

185. Professor Stake elucidates:

> One effect of the hegemony of the *U.S. News* rankings is to create an incentive for schools to calculate and aim for an optimal mix of expenditures. What this means is that *U.S. News* may unwittingly be homogenizing legal education. With time, schools will learn which spending mix yields the greatest rankings bang and the optimum mix will tend to be the same for most schools. *U.S. News* will make it increasingly hard to experiment with different ways of producing an extraordinary product.

Stake, *supra* note 184, at 242.

186. *Cf.* Robert D. Cooter, *Introduction*, 82 CAL. L. REV. 487, 489 (1994) ("Vagueness has value because it encourages diversity of behavior, which contributes to the continual refinement of the law by providing the necessary information.").

187. *See supra* note 74.

obligations.[188] The indicators over time sometimes become "targets" for countries to devote resources to improve, even where other steps might actually be better designed to achieve the goals of the treaty regime.[189] Once again, the lesson of retrospective allocation suggests that treaty regimes (and others measuring treaty compliance by countries) randomly vary the criteria on which they base their conclusions. The injection of uncertainty should discourage suboptimally high modifications in national policies in favor of particular statistical results, and instead encourage broad steps to achieve normatively desirable societal change.

CONCLUSION

In this Article, I have argued that retrospective allocation solves some of the problems to which the traditional race to capture gives rise. Retrospective allocation is a device that preserves the ability to award societal actors for valuable contributions to society without creating undesirable incentives to deplete resources. Retrospective allocation may generate costs of its own, but the benefits will often outweigh those costs. Insofar as this holds true, and the device ameliorates some of the problems associated with the traditional race, retrospective allocation is a natural response to the strategic behavior that renders first possession and the accompanying race to capture undesirable. A question arises as to why retrospective allocation will in practice be implemented. Public choice provides one explanation, which may be spun pessimistically or optimistically.

From a pessimistic standpoint, one can argue that retrospective allocation simply accomplishes what traditional grandfathering accomplishes, with a veneer of fairness. The government can use retrospective allocation to distribute property rights to virtually all the societal actors to whom it would like to distribute property rights; it thus achieves the public choice goal of satisfying powerful interests. At the same time, it can achieve the goal under the veil of procedural fairness, thus muting other possible objections to the program. It may, of course, be the case that a few powerful actors who receive property under a race to capture will lose under retrospective allocation. However, the marginal increase in opposition to the government program that results likely will be small. Moreover, it will be more than offset by the benefit enjoyed by legislators for having created a program with the appearance of procedural fairness.

A more optimistic rendering of the public choice account would emphasize that procedural fairness really matters. First, it provides limits on

188. *See* Sally Engle Merry, Measuring the World: Indicators, Human Rights, and Global Governance 11–13 (Aug. 24, 2009) (unpublished manuscript, on file with Ecology Law Quarterly); AnnJanette Rosga & Margaret L. Satterthwaite, *The Trust in Indicators: Measuring Human Rights*, 27 BERKELEY J. INT'L L. 253, 263–79 (2009).

189. *See* Merry, *supra* note 188, at 16-17; Rosga & Satterthwaite, *supra* note 188, at 285–87.

government discretion. Second, it may be likely to encourage (if not in fact to force) government actors to deliberate before they settle on a final distribution strategy. Norms may also play an important role in some settings to favor retrospective allocation regimes. Because retrospective allocation preserves the ability to award societal actors for beneficial activity, it may be preferable to allocation methods that afford no transition relief, such as auctions, which award resource rights to the highest bidders.

Finally, the lessons here have application in the design of a cap-and-trade system designed to address global climate change, and in the design of liability schemes where harm is cumulative and individual responsibility is not readily observable. The lessons here also have possible application in other areas, such as immigration law, educational assessment, and international human rights. Indeed, one would expect to see greater instances of retrospective allocation in more legal settings in the years to come.