RIGHTS ERODING BY PAST BREACH

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Abstract

Legal rights may erode as a result of past, uncontested, breach. In light of ongoing violations, the rightholder's lackluster enforcement may result in the loss of the entitlement. The doctrines of course of performance in contract law and adverse possession in property law are prominent examples of this widespread erosion phenomenon. In analyzing the effects of such laws, the Article confronts two conflicting intuitions. On the one hand, the "licence" to continue breach prospectively encourages opportunism. On the other hand, the risk of erosion may reinforce the rightholder's motivation to take anti-erosion measures, bolstering the credibility of the threat to enforce, thus better preserving the entitlement. The article proves that these two effects of erosion rules *always balance out*. The same amount of value will be extracted from the rightholder irrespective of the law's erosion doctrine. The article also demonstrates the limits of this "irrelevance" claim and the factors that may lead to its collapse. It applies the analysis to offer new perspectives on various prominent legal rules.

1. INTRODUCTION

There are many situations in which legal rights erode as a result of past breach. A property owner who does not take action against a person who occupies her land may find that her rights have been compromised under the law of adverse possession. A promisee may find herself unable to enforce an explicit contractual right if she has, in the past, acquiesced in course of dealing or course of performance to a practice departing from the contract's explicit terms. Parties to a labor agreement may find that written provisions cannot be enforced if a conflicting practice has been governing their relationship in the past. In these situations, as in many others across various legal areas, a party may be unable to enforce an explicit legal entitlement -- but only if she failed to enforce it in the past. When rights are being challenged repeatedly, anything less than rigorous enforcement by the rightholder may be translated by law into an implicit permission to continue these violations indefinitely.

The potential erosion of legal rights as a result of their violations or of conflicting practices extends beyond private law disputes. The phenomenon could also be present in the realm of public law. When a statute is not enforced by the enforcement agencies for an extended period of time, these agencies may be barred from enforcing it prospectively. The statute may formally lose its efficacy and for all practical matters expire. Generally, when a statute and a custom or a convention collide, the latter may be given priority, thereby eroding the statute.

The intuitive wisdom concerning this legal phenomenon suggests that allowing a right to erode as a result of a sequence of breaches reduces its value to the rightholder. In comparison to regimes that maintain fixed entitlements, uncompromised and unerodable by past violations, the erosion property has a value-diminishing effect. If a rightholder neglected to enforce her right in

the past, the potential erosion of the right places her in a more vulnerable position. Thus, for example, it is ordinarily believed that the adverse possession doctrine in property law is unfavorable to landowners, subjecting them to an erosion of their assets, and that this erosion becomes more severe as the statutory limitation period becomes shorter (Merrill, 1984; Epstein, 1986). Similarly, it is believed that if, doctrinally, the validity of a statute could erode as a result of disuse, the authority of statutes in general would diminish.[1]

In contrast to this common conjecture, the article demonstrates that the potential erosion of legal entitlements arising from weak enforcement of the entitlements is *not* necessarily value-diminishing. Faced with such danger of erosion, the rightholder will have a strengthened incentive to guard her entitlement and to effectively enforce against any violation. The rightholder would realize that if she acquiesces to any minor infringement and fails to prevent it or to rigorously seek a remedy against it, she may lose more than the instantaneous value extracted from her. Acquiescence may also lead to the future erosion of the entitlement, thereby inflicting on her a greater cost. Having a long term stake -- having more to lose as a result of the potential erosion -- the rightholder will be inclined to invest more in enforcement of her rights, and will more successfully prevent violations by opportunistic parties. That is, even when her costs of enforcement are high relative to the value of the injury, the rightholder may nevertheless sue, to avoid the greater long-term loss. This incentive effect -- “the credibility of threat to sue effect” -- operates in the opposite direction of the erosion effect that the law creates, and reinforces the value of the right to its rightholder.

In presenting the two conflicting effects of the eroding rights phenomenon, the stage is set for the general problem that the analysis in the article explores: could it be determined in

abstract which effect dominates? Could it generally or occasionally be true that one effect outweighs the other? That is, are entitlements more vulnerable, or, paradoxically, are they perhaps more secure under the legal approach that permits them to erode as a result of past violations? Specifically, the analysis enables to explore whether the rate of erosion, that is, the speed by which the law allows a right to erode, affects the value of the entitlements. Is it true, as it is often intuitively suggested in traditional treatments of the problem, that a faster rate of erosion (a shorter statutory limitations period) diminishes the value of the right?

In examining this issue, the article begins by demonstrating a benchmark, perhaps surprising, Proposition. It is shown that under ordinary assumption *the two conflicting effects always balance out. The magnitude of the erosion effect equals the magnitude of credibility of threat to sue effect, and as each operates in an opposite direction, their combined effect is null*. Put differently, *the choice of legal regime -- whether or not the law allows rights to erode over time, and if it does, at what speed -- does not matter*.[2] If the assumptions underlying the Proposition are met, it would imply that the value of entitlements is independent of the legal regime and, in particular, is unaffected by whether or not the law assigns breach the power to erode the parties' formal rights. Particularly, it would imply that a property owner can expect no reduction in the value she extracts from her land under an adverse possession regime and that she would also be unaffected by the length of the statutory limitation period. Similarly, it would imply that a promisee can expect to receive the same value from the promisor, regardless of whether contract law allows rights to be modified as a result of the course of performance or the course of dealings. In all these situations, the potential value loss due to erosion is exactly balanced by the potential value gain due to the greater deterrence that the credibility of the threat

to sue effect generates.

The explanation for this result, in a nutshell, is that the greater the potential erosion of her right, the more driven will the rightholder be to take measures to protect her right and enforce against even minor infringements. Consequently, the rightholder will be better equipped to deter opportunistic violations. Having more to lose as a result of the potential erosion makes the rightholder a more determined and motivated enforcer of her entitlement, thereby securing the entitlement. And, importantly, since the added motivation to sue arises directly from the potential erosion, the magnitude of its effect exactly equals the magnitude of the erosion effect. That is, every additional $1 the rightholder stands to lose due to future erosion increases her present incentive to sue by $1. Thus, she will succeed to reduce the present violation by $1, but will subsequently endure the future $1 erosion.

Furthermore, the benchmark "irrelevance proposition" suggests that, under the simplifying assumptions, there is only one underlying factor which solely determines the extent to which an entitlement is vulnerable to opportunistic violations. This factor is the rightholder's cost of enforcing her entitlement. To continuously protect herself her entitlement, the rightholder would potentially have to seek legal remedies and incur various enforcement expenditures.[3] The more costly it is for the rightholder to enforce her rights against ongoing violations, the greater would be the opportunistic breach that she will have to endure, and the lower will be the value of the entitlement to her.

This understanding sets the stage for a reexamination of the validity of the assumptions underlying the derivation of the irrelevance proposition. In relaxing the simplifying assumptions, the analysis fleshes out various factors (that were originally assumed away) and that might

explain the practical importance of erosion rules. Consistent with the insight that the only factor affecting the value of rights is the cost of enforcement, erosion rules will be shown to have a real effect on value of rights, but only to the extent that they directly affect the enforcement process. Thus, different erosion rules might impose on rightholders different costs of enforcement, different informational requirement in order to trigger enforcement, or they might affect the incentives to rely on non-enforcement. These factors, and various others explored below, could explain the social preference among erosion rules.

By arguing for a benchmark irrelevance proposition and then refuting its validity, the article might appear to be at war with itself. Why highlight a proposition that is subsequently shown to be false? Why exert the effort of demonstrating an abstract claim if this validity is founded on simplifying assumptions, which are later relaxed and shown to be both crucial to the proof and empirically unrealistic?

In meticulously deriving the benchmark irrelevance proposition, the analysis does not intend to convince the readers, but to challenge their received intuitions. And, by showing that relaxation of some underlying assumptions refutes the proposition, the analysis does not intend to resolve this challenge, but to indicate the proper agenda for exploring it. Not unlike far more profound and important irrelevance theorems that economic analysis has produced,[4] the contribution of this irrelevance proposition is not in its sweeping empirical validity, but as a methodological insight. Namely, it argues for a renewed agenda for the inquiry into the effect of erosion doctrines. It suggests that in order to understand the relevance of erosion rules and to assess their distributive effects, one must search not in the obvious place -- the substantive erosion mechanism -- but in the less obvious place, which is the enforcement rituals that different

rules entail. Faithful to this spirit the article conducts an exploration of those “less obvious” factors.

The intuition underlying this analysis, and the broad spectrum of phenomena to which it may be applied, can be illuminated with an example from a non-legal setting. An erosion phenomenon may often be present in the emergence of norms. Take, for example, norms that govern intra-family relations. Within the family's code of conduct, breach of domestic duties, if uncontested, may be known to lead to the future de facto relaxation of these duties. Consider a child who is required to obey some rule of conduct daily (“go to bed at 8PM”). When the child attempts a violation, the parent -- the “entitlement holder” -- may have to incur a cost to enforce the rule strictly (e.g., miss part of a favorite TV show). Failure to enforce may lead to the future erosion of the rule, as the child will likely be encouraged to commit such, and gradually more severe, violations in the following nights. Notice, that this erosion effect arises, not from the formal modification of the rule -- the parent does not announce a new norm -- but instead from the child's cognitive ability to generalize the past practice into a new efficacious rule of conduct. This de facto erosion of the norm parallels the rights' erosion effect arising from the law's willingness to modify formal rights as a result of past breach. But, and this is the contrasting effect suggested by the article, the potential erosion of the family's sleeptime norm as a result of its repeated violations may also lead the parent to be stricter and to more rigorously enforce the rule. Having more at stake, the parent will exercise less leniency, and will carefully protect her “entitlement”. Overall, both effects balance out: the erosion quality will not enable the child to enjoy a more lenient average duty. The degree to which the parent's entitlement (the average bedtime she imposes) could potentially erode depends solely on her cost of enforcing the rule. The

child's average bedtime will only be affected by factors which influence the parent's cost of enforcement.

The Article is structured as follows. Section 2 offers a brief doctrinal survey of the phenomenon of eroding rights. The survey demonstrates that legal doctrines that allow entitlements to erode if previously unenforced are abundant, to be found in private law, laws of procedure, international law, and public law. Section 3 then offers an informal analysis that presents and illustrates the irrelevance proposition through a set of simple numerical examples. Section 4 relaxes the simplifying assumptions made in Section 3 and exposes factors that can make erosion rules relevant. It demonstrates which features can, and which features cannot, affect the value of entitlements. Section 5 applies the theoretical insights developed by the analysis to various legal areas. It discusses how the new perspective reshapes, often undermines, some traditional conceptions concerning the effects of familiar doctrines. Finally, Section 6 offers concluding remarks, suggesting further implications and extensions of this benchmark analysis.

2. RIGHTS ERODING BY PAST BREACH: A DOCTRINAL SURVEY

This Section aims to demonstrate that the eroding rights phenomenon can be traced through many legal areas and doctrines. In the brief survey to follow, we shall encounter rules that allow entitlements to erode, either continuously across time, or discretely at a given point in time. While this survey intends to be primarily informative, it also proposes a conceptual contribution. It suggests that seemingly unrelated practices, scattered across various legal areas, do in fact share a common structure. This previously unrecognized unification could, in turn, imply that the various doctrines be uniformly examined and cross-referenced. “Collapsing” these scattered doctrines into one underlying legal structure achieves more than economies of analysis.

It could -- although this direction is not pursued here -- expand the realm of old rationales into new territories.

2.1 Contract Law: Course of Performance and Waiver

Several doctrines of contract law allow contractual rights to erode as a result of past breach. These doctrines assign priority to the course of past conduct over the express terms of the contract, if the parties allowed this conduct to persist. Most notably, the Uniform Commercial Code ("UCC") doctrine of course of performance provides that "course of performance shall be relevant to show a waiver or modification of any term inconsistent with such course of performance".[5] When the contract is silent over a matter which is disputed by the parties, the course of conduct of the parties in similar past situations takes precedence over other sources of interpretation. But, importantly, even if the contract is not silent over that matter, course of conduct or performance may vary the express agreement. As White and Summers (1995, p.47) explain: "courts sometimes say that course of performance 'controls' and thus alters the express terms". Similarly, the doctrine of waiver allows an express term to be modified, even expire, without assent or consideration, merely by the conduct of the parties. If, say, a buyer accepts several non-conforming deliveries in succession, the seller may continue to deliver similar quality in the future, justifiably reasoning that the buyer has waived her right for conforming tender. Interestingly, courts are willing to recognize implicit waiver even when the contract includes a "no-oral-modification" clause, if the course of performance is relied-upon. That is, the anti-waiver clause is itself subject to waiver.[6]

These doctrines are traditionally rationalized as facilitating flexible adjustments of contractual obligations within repeated interactions, without requiring formal redrafting of the

explicit terms. The parties' past conduct is believed to be the best indication of how they actually intended to carry out their affairs and to which modifications they eventually concurred. This view reflects to the realist adjudicative approach embodied in the UCC., of bridging the gap between the reality of commerce and the legal duties governing it (Llewellyn, 1960; Danzig, 1975). In contrast to this vision, it has been argued that the UCC's course of performance and waiver doctrines would in fact impede flexible adjustments of contractual obligations and performance. When facing with her counterpart's violation of a provision, a party will be more reluctant to acquiesce if she knows that such a concession could be construed ex post as a step towards the establishment of a new course of performance. Thus, more rigidity to original express terms will ensue (Bernstein, 1996). The analysis below will examine these conflicting intuitions and will demonstrate to what extent we can indeed expect a different level of adherence to express terms under the course of performance regime.

2.2 Property Law: Adverse Possession and Related Doctrines

Several important doctrines of property law allow property rights to erode as a result of past violation. Most prominent among these doctrines is the rule of adverse possession. According to this rule, an interest in land is transferred without the consent of the prior owner, and even in spite of her objection, if for a sufficiently long time she has failed to take measures to recover possession. Interestingly, long continuous possession is not deemed sufficient to erode the right, the possession must also be "adverse", that is, it must be openly hostile. Permission by the owner to possess the property destroys the hostility requirement and stops the erosion from occurring (Cunningham et al., 1993).

The amount of time required for adverse possession to mature into a property right varies

across jurisdictions and properties. For land, the majority of the states still require 20 years, but the modern trend has been to shorten this period (Patton, 1952; Ellickson, 1986). In all cases, though, the time count begins only when the possession is “actual”, that is, leaves enough physical evidence so it can be observed by the owner using reasonable means.

There has been considerable discussion among legal commentators as to whether the purpose of the adverse possession doctrine is to penalize the negligent and dormant owner for sleeping upon her rights, or to reward those who are actually using and benefitting from land (and other persons who have dealt with them on the assumption that possession implies ownership). However, there is little dispute among legal scholars that adverse possession operates to benefit of possessors and to the detriment of owners. That “scoundrels may get net benefit from the limitations period” is an oft-sounded view, based on the intuition that the one-sided erosion, in favor of possessors, cannot hurt and can only improve the possessors' economic status (Epstein, 1986). It is also widely understood that adverse possession is instrumental to the community by shifting assets towards more efficient allocations, and by “quieting all titles”, i.e., reducing litigation over title (Cooter and Ulen, 1988; Posner, 1998; Netter, 1998). The analysis in this article will seek to contribute to these discussions, by inquiring whether, and to what extent, are property owners indeed penalized by the adverse possession doctrine, and whether we can indeed expect it to quiet title to property, reduce litigation, and facilitate flexible and efficient reallocation of resources.[7]

2.3 Intellectual Property

As in the law of real property, the law of intellectual property allows rights to erode as a result of past infringements against which no injunctions were sought. Under patent and copyright

law, for example, the doctrines of laches[8] and estoppel bar a rightholder from seeking an injunction against a continuing infringement of her right, if the infringement was sufficiently long[9] and if the rightholder had the opportunity yet failed to enforce her rights. These doctrines are rationalized on the basis of induced reliance: it is inequitable to bring suit after the rightholder's past inaction had led an infringer to believe that the rights will not be pressed, thereby proceeded to make specific investments. Thus, a party's acquiescence to an infringement may eliminate her power to seek an injunction preventing future unauthorized use. To stop an infringement from eroding her right, the patent holder must take any action that could potentially prevent the infringer from believing that she is permitted to use the patent. In particular, the patent holder need not necessarily seek a remedy in court; she can merely express her objection to the continuation of the infringement, thereby communicating to the infringer that future relief may be sought, and warning her against making investments.

A particularly interesting rule exists under trademark law, according to which rights in a trademark may be lost if deemed to have been “abandoned”. For example, any course of conduct by the owner that causes the a federally protected mark to lose its significance as an indication of origin, and lasts two consecutive years, is deemed abandonment (McCarthy, 1984). Based on the notion that the owner's failure to prevent imitation or unauthorized use of the mark indicates an intention to abandon it, the owner who could reasonably learn about a specific infringement yet fails to take measures will be held to have abandoned the trademark *in rem*, against the rest of the world.

2.4 Public Law

Not only rights, but rules and statutes as well may potentially erode as a result of a

sufficiently long practice of violations and of the authorities' failure to enforce them. In many countries, enforcement agencies may be barred, under the doctrine of *desuetude*, from enforcing a statute that exists in the law codes if that statute was repeatedly violated in the past and the violations were ignored.[10] This doctrine has, however, been rejected in Anglo-American law. In a landmark case (*Thompson v. District of Columbia*, 203 F.2d 579 (D.C., 1953)), a party asserted that the failure of a municipal authority to enforce an enactment for 78 years suggests that the enactment has lost its force and effect. The court of appeals adopted this view, explaining that enforcement of a single violation in the face of a practice of non-enforcement constitutes an exercise of legislative power. The enactment was in effect repealed and only Congress can revive it. The supreme court reversed this decision and adopted the opposite view, that failure of the enforcement agency to enforce a law does not result in its repeal. (*District of Columbia v. Thompson*, 346 U.S. 100 (1953)). As other courts have articulated it, in the U.S. "statutes do not wither by disuse" (*Washtenaw County Road Commissioners v. Publish Service Commission*, 85 N.W.2d 134 (Mich. 1957)).

The question whether or not a long sustained practice affects the enactment powers of the government is framed within other areas of jurisprudence as well. One important context is the classic doubt regarding the status of a *contra legem* custom -- one that conflicts with a statute (Blackstone, 1854; Williams, 1957). Another context is the effect of delay. Can an agency act in delay? It is commonly believed that the agency must act within a reasonable time. That is, the power to perform an administrative action erodes after a period of inaction (*Houseton v. Nimmo*, 670 F.2d 1375 (9th Cir. 1982)). Lastly, can the government change its policies and erode existing entitlements without having to compensate affected parties? Whether or not an existing

government policy can be affirmatively revoked, with or without fair compensation, can be viewed as a choice of entitlement erosion regime. Affected parties, through political protest and other rent-seeking conduct, can try to shape the government policy to prevent the erosion of their entitlements.

3. BENCHMARK ANALYSIS

This Section develops the benchmark theoretical insight informally, through a set of simple numerical examples. The assumptions underlying the analysis are carefully spelled out, as they will later on (in Section 4) be the basis for a reassessment of the practical use of this benchmark insight.

3.1 Framework of Analysis

Consider a situation in which a promisor has a contractual duty to make a periodical delivery of 100 to a promisee. The contractual price was paid in advance by the promisee. Trade is assumed to be efficient, so that there are no efficiency gains to be had from breach. If the promisor fails to deliver promptly, the promisee may seek a remedy in court. It is assumed, however, that enforcement is costly, and that a litigation cost of 30 must be incurred by each party if the promisee files a claim. Although costly, the legal system is otherwise assumed to operate perfectly, i.e., courts do not make mistakes and award accurate expectation damages. It is assumed that litigation at any given period can only address the breach that occurred at that period. If a breach occurs repeatedly, the promisee must seek a remedy each period anew.[11] Lastly, it is assumed that the legal system operates under the American rule of litigation finance,

so that each party bears her litigation cost regardless of the outcome at trial.

We shall compare the value of the promise to receive 100 each period under two polar legal regimes. The first regime, which will be labeled the *Fixed Rights* regime, maintains that a promisee's formal right at each period is independent of how much she actually received at previous periods. Even if in previous periods the promisee acquiesced to deliveries of less than 100 and did not sue, she is still entitled to receive 100 in the remaining periods. This is a history-independent rule: in determining the content of an entitlement, the law ignores the practice of its preservation in previous periods, and merely looks at the formal sources -- here, the explicit provisions of the contract -- to determine the rights. Course of performance or course of dealings are not deemed to indicate a waiver by the promisee.

The opposite regime, labeled the *Eroding Rights* regime, states that what the promisee is entitled to receive at each period depends, not only on the contractual provision, but also on how much she actually enjoyed in the previous periods. If the promisee has failed to enforce prompt deliveries as promised in the contract, her contractual right could eventually erode, and she may be entitled to receive less than what the contract stipulates. The speed by which the erosion occurs -- the “rate of erosion” -- could vary across regimes. Different laws could stipulate different threshold requirements for the number of breach instances that would establish a course of performance. In the example analyzed below, for the sake of brevity, we shall examine a polar Eroding Rights regime, one that establishes that the contractual right erodes after merely one period of breach. That is, if the promisee accepted a delivery smaller than 100 without suing, she will immediately see her right erode and in the next period she will only be entitled to the amount that was delivered in the previous period.[12]

3.2 The one-period case

As a benchmark, let us briefly examine the parties' behavior in the one-period case, in which the seller has to make one delivery, valued 100. How does the fact that the promisee must incur a cost to enforce her right affect the incentives of the promisor to breach?[13] In this scenario, an opportunistic promisor will breach, but only to the extent that it will not instigate suit. If the breach is too costly, the promisee will opt to spend the litigation costs and enforce full delivery, in which case the promisor ends up worse off, as she has to fully deliver and, in addition, incur litigation costs. However, if the breach is not too costly -- in particular, if the cost of the breach to the promisee is less than 30, so that she still receives a benefit of no less than 70 -- the promisee will be better-off refraining from suit. Excluding, for the time, the possibility of settlement, any threat by the promisee to sue for breach valued less than 30 is not credible. Anticipating this, the promisor will deliver exactly 70 and avoid litigation. The promisor will effectively “expropriate” the promisee's litigation costs as rent.

3.3 The two-period case

Let us change the above example and suppose that the horizon extends to two periods. The promisee's explicit contractual right is to receive a per-period delivery of 100. If, at any period, the promisor breaches and delivers less, the promisee must turn to court *in the same period* and seek a remedy. Again, the cost of litigation would be 30 for each party any time the promisee initiates a suit. For now, assume the parties have no “time-preference”, that is,$1 at period 1 is worth$1 at period 2.

3.3.1 *Performance under the Fixed Rights regime*

Under the Fixed Rights regime, the promisor must deliver at each period the amount she promised in the contract, 100. Thus, regardless of how much the promisor delivered at period 1, at period 2 she will have to deliver 100. Here, the promisor's behavior will simply replicate the one-period case. Since period 1's delivery does not affect the promisor's duty at period 2, the behavior at each period can be analyzed independently. For the reasons identical to those applying in the one-period case, the promisor will deliver 70 at each period and no suit will actually be brought. Performance under this regime will be identical to the performance of two single-period contracts.

3.3.2 *Performance under the Eroding Rights regime*

Under the Eroding Rights regime, what the promisor has to deliver at the second period can deviate from the explicit terms of the contract, and can be affected by the course of performance. Consider the case in which the law stipulates that the amount delivered at the most recent period, if accepted by the promisee and no suit was brought, defines the course of performance and establishes the new duty. Under this rule, at period 1 the promisor has to deliver 100 (as there is no course of performance yet), and at period 2 the promisor has to deliver an amount equal to the amount she actually delivered at period 1, if it was accepted by the promisee without suit.

In analyzing this case, we will first examine the parties' incentives at the second period, and later turn to examine the first period incentives. This “backward induction” approach is appropriate whenever a party's decision at one point in time depends on what she expects to happen at the subsequent stages. At period 1, the parties' decisions -- how much to deliver and whether or not to sue -- will depend on what they expect to follow at period 2. Thus, to analyze

the period 1 decisions we must first understand the decision patterns at period 2. That is, we can analyze decisions at period 2 for any given "history" of period 1, and subsequently proceed to determine what will happen at period 1.

In the example above, consider the decision at period 2. Suppose the promisor delivered to the promisee a delivery of v at period 1 and was not sued (for now, v can be any number; its exact magnitude will be determined when we analyze the period 1 decision). At period 2, this value v becomes the course of performance, namely the maximal amount the promisee can expect to be delivered by the promisor. If the promisor delivers less than v the promisee could sue and enforce v, but would have to spend a litigation cost of 30. Therefore the promisor will act opportunistically and deliver less than v, as little as v - 30.

Moving to period 1, the parties expect that for any v delivered and accepted at this period, the promisee will follow with a period 2 delivery of v - 30. The promisor will set v as low as she can, as to not instigate suit. She will set the lowest level of v that satisfies the constraint

$$\underbrace{v+(v-30)}_{No-Suit} \geq \underbrace{100+(100-30)-30}_{Suit}.$$

The left hand side of this equation denotes the promisee's payoff when she does *not* sue. In that case, she receives the promisor's period 1 delivery v, and since this delivery becomes the course of performance, it will be the benchmark for the expected delivery at period 2, which we know will be v - 30. The right hand side denotes the promisee's net payoff when she *does* sue in period 1. In that case, the court orders the promisor to deliver 100 at period 1, this level remains the promisor's duty for period 2, and thus the expected delivery at period 2 will be (100 - 30). Of

course, when the promisee sues she incurs an additional cost of 30. The inequality condition specified in the equation is the “incentive constraint”, guaranteeing that the promisee will not prefer to sue. The promisor's privately optimal level of v is the one that satisfies the constraint with equality. Solving this equation, we get that at period 1 the promisor will deliver $v = 85$. This implies that at period 2 the promisor will deliver $v - 30 = 55$. Thus, under the Eroding Rights regime the two deliveries will not be equal. Initially there will be a high delivery of 85, followed by a low delivery of 55.

3.3.3 *Comparison of the two regimes*

The example demonstrated that under the Fixed Rights regime two equal deliveries of 70 will be made, while under the Eroding Rights regime there will be a declining trend of deliveries, 85 and then 55. This trend is not accidental. The reason the period 1 delivery is higher under the Eroding Rights regime is that the promisee has more to lose by acquiescing to a low delivery at that period. By not suing, the promisee would forgo not only the incremental value of delivery at period 1, but also would forgo the same value at period 2. Her acquiescence would permit a lower course of performance standard to be established, decreasing the value delivered at period 2. Having thus more to lose, the promisee's threat to sue gains added credibility, thereby restraining the promisor's period 1's opportunism.

While the period 1 delivery was greater under the Eroding Rights regime, the period 2 delivery was smaller. Here the reason is the “erosion” effect. Under the Eroding Rights regime, the duty to deliver erodes as a result of the period 1 breach. Although more restrained, the period 1 breach sets a lower benchmark for period 2, accounting for the erosion that occurs at this stage. That is, under the Eroding Rights regime, the seller's duty “decays” over time.

Thus, we can clearly identify two conflicting effects arising under the Eroding Rights regime, relative to the Fixed Rights regime:

G *The credibility of threat to sue effect*: Under an Eroding Rights regime, any breach at period 1 is more costly to the promisee than it would have been under the Fixed Rights regime. Thus, under the Eroding Rights regime, at period 1 the promisee has a more credible threat to sue and the promisor will consequently commit a smaller breach.

G *The erosion effect*: The Eroding Rights regime leads to sequentially diminishing deliveries over time. Consequently, the period-2 delivery under the Eroding rights regime will be smaller than the period-2 delivery under the Fixed Rights regime.

Having identified these two conflicting effects, the natural question to examine is whether one effect would generally be more powerful than the other. Is the overall amount of delivery higher or lower under the Eroding Rights regime, relative to the Fixed Rights regime?

In the example above, both effects have equal magnitude, thus the overall value of delivery is the same across the two regimes. Under the Fixed Rights regime the promisee receives 70 + 70 = 140, whereas under the Eroding Rights regime she receives 85 + 55 = 140. This result -- the equality of the overall delivery values across regimes -- is not accidental. It will be shown to hold very generally, for all time horizons, time-preference profiles, and “almost” all course of performance rules. The reason for this equality, or this *irrelevance of regime with respect to overall delivery value*, is that the two conflicting effects are precisely a mirror image of each other. The promisee manages to restrain the period 1 breach *because and only because* she has more to lose from it, that is, she expects the breach to erode future deliveries. When there is no erosion, the promisee's concern in suing for breach would be solely to remedy the

present, one-period sub-performance. Thus, there is also no credibility of threat to sue effect. As the erosion effect created by the law become stronger, the promisee stands to lose more at period 2 if she does not sue at period 1, thus the credibility of her threat to sue is bolstered. Under any legal regime, the limits of the seller's opportunism are thus determined, not by the legal rule, but by the promisee's litigation costs. The promisor can manage to expropriate from the promisee a rent equal to the promisee's aggregate litigation costs -- 60 in the above example -- a value that is unaffected by the legal rule.

3.4 How the "Rate of Erosion" Affects Performance

In the example above, it was assumed that the most recent period's delivery alone establishes the course of performance and the contractual terms are completely ignored in determining the new legal duty . One can, of course, consider different erosion rules, that assign a more moderate role to the most recent period's performance. We shall see that the choice of rule would affect the sequence of deliveries rendered by the promisor, but not their overall value.[14]

In our two-period setting, different course of performance rules may give different weights to the period 1 delivery. For example, if the contract stipulates a delivery of 100 for period 2, and if the period 1 delivery was v, an "intermediate" course of performance rule would dictate that the promisor has to deliver, at period 2, the average of 100 and v. That is, the intermediate course of performance rule would allow the period 1 delivery to only partially erode the period 2 duty. This is a rule embodying a slower rate of erosion than the one examined before.

By backward induction, consider the decision at period 2 under this intermediate rule. Suppose the promisor supplied the promisee a delivery of v at period 1 and was not sued. Since at period 2 the legally eroded duty is to deliver only $\frac{1}{2}(100 + v)$, the promisor will opportunistically

deliver ½(100 + *v*) - 30. Moving to period 1, the parties expect that any *v* delivered and accepted at this period will be followed by a delivery of ½(100 + *v*) - 30 at the next period. The promisor will set *v* as low as she can, as to not instigate suit. As explained above, she will set a level of *v* that satisfies the equation

$$\underbrace{v+\left[\tfrac{1}{2}(100+v)-30\right]}_{No-Suit} \geq \underbrace{100+(100-30)-30}_{Suit}$$

The left hand side of this equation denotes the promisee's payoff when she does not sue and allows *v* to modify the expected delivery at period 2. The right hand side denotes the promisee's payoff when she does sue and expects 100 to remain the delivery duty at period 2. The equality condition specified in the equation guarantees that the promisee will not sue, and thus it is the solution to the promisor's optimization problem. Simplifying this equation, we get that at period 1 the promisor will deliver $v = 80$. This implies that at period 2 the promisor will deliver ½(100 + *v*) - 30 = 60.

We can see that the particular version of the course of performance rule does affect the actual deliveries rendered. When the rate of erosion slows down, the force that caused the two deliveries to diverge is weakened. Instead of deliveries of 85 and 55, we get deliveries of 80 and 60. This can be explained intuitively. Under the intermediate rule, a breach at period 1 is not as costly to the promisee at period 2 as the same breach would have been under the original version of the Eroding Rights regime, with its sharper rate of erosion. This reduces the stakes for the promisee, diminishing the credibility of her threat to sue at period 1, and consequently leading to a

smaller period 1 delivery. Yet the slower erosion rate increases the period 2 delivery. Thus, as the rate of erosion slows, the period 2 duty is less vulnerable, but this effect reduces the incentive of the promisee to curb the period 1 opportunism.

Note, in addition, that under the intermediate regime considered the promisee stands to receive an overall sum of deliveries of 80 + 60 = 140, the same as under the two regimes examined before. As argued and explained above, the choice of regime *does not affect the overall value the buyer receives*. As we continue to slow the rate of erosion the two deliveries will change and converge towards 70, but the overall sum of deliveries will remain unchanged, 140. In general, under a rule that makes the period 2 duty equal $\alpha v + (1 - \alpha)100$, that is, puts a weight of $0 \leq \alpha \leq 1$on the actual delivery in determining the period 2 duty, the period 1 delivery will equal $(70 + 100\alpha)/(1 + \alpha)$ and the period 2 delivery will equal $(70 + 40\alpha)/(1 + \alpha)$. One can confirm that as α rises, the period 1 delivery increases and the period 2 delivery decreases, but that for all α the two deliveries sum up to 140.

3.5 How the Length of Interaction Affects Performance

In the example above, it was assumed that the contract extends to only two periods. It is natural to ask whether the results obtained, in particular whether the irrelevance of the legal regime with respect to the total amount delivered, applies to contracts with longer time horizons. Suppose the contract stipulates *three*, instead of two, identical deliveries of 100. Under the Fixed Rights regime, the promisor will deliver 70 each period, as each added period is merely a replication of a one-period contract. The total value delivered is $3 \times 70 = 210$. How much will the promisor deliver under the Eroding Rights regime?

As before, we can analyze the incentives by backward induction, beginning with the final

period, and proceeding backward one period at a time. Denote by v_1, v_2, v_3 the actual deliveries shipped at the three periods. If at period 1 the promisee acquiesces to v_1 the period 2 duty becomes v_1, and if at period 2 she acquiesces to v_2 the period 3 duty becomes v_2. Thus, at period 3, given the period 2 delivery of v_2, the promisor will deliver $v_3 = v_2 - 30$. Moving back to period 2, given the period 1 delivery of v_1, the promisor will deliver v_2 that solves

$$\underbrace{v_2 + (v_2 - 30)}_{No-Suit} = \underbrace{v_1 + (v_1 - 30) - 30}_{Suit}$$

If she does not sue at period 2, the promisee will get v_2 immediately and, as this becomes the course of performance, v_2 - 30 at period 3. If she sues, the promisee can only get what has become, after period 1, the course of performance, that is v_1, and subsequently v_1 - 30 at period 3. Simplifying, we get $v_2 = v_1 - 15$. Thus, we also know that $v_3 = v_2 - 30 = v_1 - 45$.

At period 1, given a contractual duty of 100, the promisor will set the lowest value of v_1 that satisfies the constraint

$$\underbrace{v_1 + (v_1 - 15) + (v_1 - 45)}_{No-Suit} \geq \underbrace{100 + (100 - 15) + (100 - 45) - 30}_{Suit}$$

If she does not sue, the promisee will get v_1 immediately and, as this becomes the course of performance, v_1 - 15 at period 2, and subsequently v_1 - 45 at period 3. If she sues, the promisee will get 100 now, (100 - 15) at period 2 and (100 - 45) at period 3. To avoid suit and yet set the lowest v_1 possible, the promisor will satisfy the constraint with equality, thus setting $v_1 = 90$. Hence, the profile of deliveries will be $v_1 = 90$, $v_2 = 75$, and $v_3 = 45$. The sum of the three deliveries will equal 90 + 75 + 45 = 210, exactly equal to the sum of the deliveries under the Fixed

Rights regime.

In general, the length of the interaction does not affect the results, nor their intuition. For every length of contract, the credibility of threat to sue effect will lead to higher early deliveries, whereas the erosion effect will lead to lower late deliveries, and the sum of the deliveries will always be the same across regimes. This will also be true for infinite horizon interactions, as long as the promisee discounts future deliveries.

3.6 How Time Preferences Affect Performance

The examples above demonstrated that while different erosion rules do not affect the overall amount delivered, they do affect the distribution of deliveries over time. Accordingly, it might be conjectured that if the promisee has a time preference exhibiting some degree of impatience, i.e., a discount rate smaller than 1, she might be better off under the Eroding Rights regime. The intuition underlying this conjecture would be the following. When the discount rate is low, a delivery at period 1 is valued more than the same amount delivered at period 2. We saw in the two-period example that, in comparison the Fixed Rights regime, the period-1 delivery under the Eroding Rights regime will be increased by 15 (85 versus 70), whereas the period-2 delivery will be reduced by 15 (55 versus 70). When the discount rate is smaller than 1, it might be perceived, the promisee is experiencing a net gain by trading a period-2 loss of 15 for a period-1 increase of 15.

This conjecture is not valid. No matter how stronger the promisee's preference for early deliveries relative to late deliveries, the discounted sum of deliveries will be identical across regimes. To demonstrate the fallacy of the conjecture, and thereby to gain additional insight as to the robustness of the irrelevance result, return to our benchmark two-period example, and

suppose that the promisee has a discount rate $\delta \# 1$ (i.e., \$1 at period 1 is valued \$$\delta$ at period 2). Under the Fixed Rights regime, the promisee will receive 70 each period, worth a discounted sum of $70 + 70\delta = 70(1 + \delta)$.

Under the Eroding Rights regime, for any delivery v the promisee received at period 1, she will receive v - 30 at period 2. Thus, at period 1, v will be determined according to the following incentive constraint:

$$\underbrace{v + \delta(v - 30)}_{No-Suit} \geq \underbrace{100 + \delta(100 - 30) - 30}_{Suit}$$

Simplifying, we get that the period-1's delivery will be $100 - 30/(1+\delta)$ and period 2's delivery will be $70 - 30/(1+\delta)$. The discounted sum of these two deliveries is

$$(100 - \frac{30}{1+\delta}) + \delta(70 - \frac{30}{1+\delta}) = 70(1+\delta).$$

Thus, the irrelevance of the regimes with respect to the discounted sum of deliveries is maintained: under both regimes the discounted sum is $70(1 + \delta)$. This should not be surprising. When, at period-1, the promisee discounts the period-2 delivery, the potential erosion becomes less costly, thereby diminishing the magnitude of the credibility of the threat to sue effect. As the discount rate decreases, the credibility of the threat to sue effect will weaken and the period-1 delivery will become smaller. (When $\delta = 1$, i.e., there's no discounting, we saw that the period-1 delivery was 85. For smaller δ, say $\delta = 2/3$, the period-1 delivery would equal only 82. As δ converges to 0, the period-1 delivery would converge to 70.) That diminution in the credibility of threat to sue effect is, in discounted value terms, exactly equal to the reduced costliness of the

erosion effect. Put differently, the flaw in the above conjecture arises from its failure to account for the fact that when discounting occurs, it will simultaneously be reflected in the actual deliveries rendered. The more significant the discounting, the less "painful" is the erosion effect, but consequently the less powerful becomes the credibility of the threat to sue effect. Notice, moreover, that under either regime the value tendered to the promisee is smaller than the value promised by the amount of $30(1 + *), which is the discounted value of the promisee's litigation costs. Thus, we should now turn to examine this one factor that appears to solely affect the overall value delivered, namely, litigation costs.

3.7 How Litigation Costs Affect Performance

In the original two-period example, it was assumed that promisee would incur a per-period litigation costs of 30 in enforcing her rights. How would the results change if the litigation costs were different? Suppose the contract still stipulates two identical deliveries of 100, but that the promisee must incur litigation costs of c_1 at period 1 and c_2 at period 2 to enforce her due delivery. How much will the promisor deliver in each period, and in total, under the two regimes?

Under the Fixed Rights regime, as the duty to deliver remains 100 at both periods, the promisor will deliver 100 - c_1 at period 1 and 100 - c_2 at period 2, for a total delivery of 200 - (c_1 + c_2). Under the Eroding Rights regime the promisor will deliver v at period 1 and v - c_2 at period 2. v would be set according the following incentive constraint

$$\underbrace{v + (v - c_2)}_{No-Suit} = \underbrace{100 + (100 - c_2) - c_1}_{Suit}.$$

Thus, the promisor will deliver v = 100 - ½(c_1) at period 1 and 100 - ½(c_1) - c_2 at period 2. The total delivery will be (100 - ½(c_1)) + (100 - ½(c_1) - c_2) = 200 - (c_1 + c_2).

Two points are illustrated by this example. First, for any profile of litigation costs, the promisee can expect to receive the same total delivery under the two regimes. The main claim proposed by the article, that the value of entitlements is independent of the legal regime, stands. Second, the example demonstrates that the total amount delivered depends on the litigation costs of the promisee. Specifically, the promisor's opportunism -- the rent she is able to extract -- equals, under any legal regime, exactly to the promisee's aggregate litigation costs, (c_1 + c_2).

This last point can be further explored, to identify how an enriched depiction of the litigation process would affect the analysis. Let us untangle the concept of "litigation costs" and consider three standard factors that could affect it: fee-shifting, settlements, and litigation-free enforcement.

(1) *Fee Shifting.* The analysis was conducted under the assumption that the American rule of litigation finance governs, i.e., that each party bears her own cost of litigation, regardless of the trial's outcome. This assumption would seem, at first glance, to account for the result that the promisor can opportunistically breach and extract c_1 + c_2 from the promisee. For if the promisee could sue and be fully reimbursed for her litigation costs, the promisor will have no incentive to subperform. However, even then it would still be the case that under both the Eroding Rights and the Fixed Rights regimes the amount of delivery will be the same. Moreover, with a slight and plausible change in assumptions, the quantitative results apply with equal accuracy under the British rule, which has the losing party reimburse the winner for her full litigations costs. Suppose that when a meritorious plaintiff files a suit, her chances of prevailing at trial and being fully

compensated are not certain, denoted by $\beta < 1$. Following previous treatments of this analog (Bebchuk, 1984), we can define the plaintiff's "de facto" litigation costs under the British rule to be

$$c_i = (1-\pi)(c_i^p + c_i^d),$$

where c_i^p and c_i^d are, respectively, the plaintiff's and defendant's period-i out-of-pocket litigation expenditures (i = 1,2). That is, the promisee's de facto litigation costs equal the expenditures of both parties, multiplied by the probability that the promisee will have to bear them. Given this adjusted definition of c_1 and c_2, the results obtained in the analysis above hold. Specifically, all erosion rules generate the same value to the promisee, equal to 200 - (c_1 + c_2). If, say, the promisee is certain to win at trial (β = 1), $c_1 + c_2 = 0$, and the value of the promisee's right is 200, unaffected by the existence of any erosion rule.

(2) *Settlement Bargaining*. When a party's right is violated, she may not need to incur her full litigation costs in order to be compensated. If her threat to sue is credible, she may be able to extract a settlement from the defendant instead (Bebchuk, 1988; Katz, 1990). The possibility of settlement bargaining could have an effect on the quantitative results derived in the analysis, but not on the validity of the irrelevance proposition. Specifically, what determines the value of the settlement the rightholder will be able to extract are the expected judgment (i.e., the value of the right), the parties' litigation costs in light of the fee shifting rules, and the division of bargaining power in settlement negotiations (Cooter et al., 1982). Thus, the degree of opportunism that the rightholder will have to tolerate may be different than established above. For the quantitative

results stated above to hold, c_i has to be interpreted as the cost of reaching a settlement equal to the expected judgment (rather than the cost of litigating all the way to judgment). More generally, c_i can be interpreted as the difference between the expected judgment and the amount the rightholder can extract through settlement, incurring no litigation costs. Under either interpretation, the value of the rightholder's right will remain 200 - (c_1 + c_2), unaffected by the rule of erosion.

(3) *Preserving the right without litigation*. In the analysis above, erosion of rights occur any time the rightholder acquiesces to a sufficiently continuous violation of her right. Acquiescence, in the example, is the failure to sue. However, the analysis can be interpreted more broadly to apply to other forms of legally acceptable responses to breach. Rightholders may not necessarily have to sue after every instance of breach in order to prevent erosion: they can merely communicate objection to the infringement. For example, under the course of performance and waiver doctrines in contract law, rightholders can prevent erosion by merely objecting to non-conformity or delay (*UCC* §2-208(1)). Similarly, in intellectual property law the doctrines of laches and estoppel would in most circumstances fail to apply if the rightholder declares her objection to the infringement or protests the breach in a way that maintains her power to sue at a later stage, subject to statutory limitation constraints (Goldstein, 1989). Moreover, even in land law, where the doctrine of adverse possession includes an element of ‘hostility’, implying that erosion is not slowed down by anything less than eviction, there is strong evidence that owners who warn trespassers against continuing occupation might not suffer the erosion result (Helmholtz, 1983). In these cases, the litigation costs analyzed in this model would merely equal the cost of communicating the objection or the protest.

3.8 The Design of Contracts under the Two Regimes

We have seen that the choice of regime will not have any bearing on the overall sum of deliveries, yet it would affect the distribution of deliveries. A promisee that has bargained for a uniform stream of installments may receive a declining sequence of deliveries. Thus, it is natural to inquire how the anticipation of this effect would influence the original contract the parties write. Namely, if the promisee is interested in actually receiving deliveries of 100 at each period, what contract does he have to bargain for under each regime, to "preempt" breach?

Anticipating the patterns of breach discussed above, the promisee will have to demand different contracts under the different regimes. Under the Fixed Rights regime, anticipating that the contractual promise will be breached by 30 each period, the promisee will ask for a contract stipulating deliveries of 130 each period. Under the Eroding Rights regime, anticipating the period 1 delivery to be breached by 15 and the period 2 delivery to be breached by 45, the promisee will ask for a contract stipulating deliveries of 115 and 145.[15] Thus, we can expect the choice of regime to affect, not only the ex post incentives to breach, but also the design of the contract. Specifically, the faster the rate of erosion permitted by the legal rule, the lower will be the period 1 stipulated installment and the greater will be the period 2 stipulated installment. Alternatively, the parties who write a contract for two deliveries of 100 each and who anticipate the patterns of breach would adjust the upfront price paid by the promisee downwards. Importantly, under either regime the contracts will call for the same overall amount of delivery, and the contractual price paid by the promisee would not be affected by the legal regime.

4. WHY IS THE IRRELEVANCE PROPOSITION "FALSE"?

The benchmark result obtained in the analysis suggests that if different erosion rules are associated with similar litigation or enforcement costs, these rules will have no net effect on the value of entitlements. As argued in the Introduction, the useful way to interpret this theoretical result is not to accept is as conclusive, but as a baseline for differently focused inquiry. That is, if in practice different erosion rules are to have differential effects on the value of entitlements, then these effects must arise, and should be traced to, not the obvious sources but to the less obvious ones. It is *not* the substantive erosion mechanism that is embodied in a rule which matters, but rather the enforcement process associated with each rule. When the choice of erosion regime affects the enforcement ritual, the irrelevance result will no longer hold.

Put differently, the main contribution of this analysis is not in making an empirically-testable claim regarding the de facto relevance of a particular branch of legal rules. The contribution is in making the case for a revised agenda for the inquiry into the relevance, significance, and justifications of these rules. In similar fashion to the Coase Theorem's recommendation that the efficiency of legal rules should be attributed to their effects on reducing transactions costs, the proposition in this article recommends that the distributive effects of a sub-set of rules -- erosion rules -- be understood through their endogenous effect on the enforcement process.[16] Viewed in this light, it is not surprising that the result highlights the importance of “transactions costs”: and the neutrality of substantive allocation rules. Within this paradigm, the remainder of this Section explores various factors that may lead in practice to breakdown of the irrelevance result.

4.1 Endogenous litigation costs

Different erosion rules may require different litigation efforts on the part of the

rightholder in order to prevail at trial. In particular, one may imagine that rules incorporating fast rates of erosion (e.g., short limitation periods) would constrain the rightholder to file weaker complaints. Fast erosion rates require a costlier litigation effort, as the rightholder would have a shorter time to prepare her case and to acquire quality evidence. The shorter time and the lower quality evidence might also raise the likelihood that the rightholder will not prevail at trial, reducing the expected judgment and thereby subjecting her to greater opportunism. Similarly, fast rates of erosion might also put more at stake at trial (if it occurs), leading the rightholder to incur a higher expenditure in litigation. If, for any of these reasons, the erosion rule affects the expected costliness of suit, the choice of an erosion regime will have a real effect on the value of the right.

One systematic feature which might make litigation under the Fixed Rights regime less costly is the possibility of *retrospective suit*. In deriving the irrelevance result, it was unrealistically assumed that a rightholder must enforce after each instance of breach in order to gain compensation. Namely, if breach occurs repeatedly, a rightholder cannot sue retrospectively for recovery of all past violations. In practice, however, under the Fixed Rights regime a rightholder may often be permitted to sue retrospectively for several past breaches, thus economize on litigation costs. A rightholders may plausibly await the full statutory limitations period and seek an aggregate remedy in one chunk. Under the eroding rights regime, however, the rightholder cannot afford to be patient. If she waits, her future rights will erode, and her claim for past recovery may be deemed to have been waived. Her silence diminishes the value to her of both past and subsequent performance. The promisee must take recurrent measures: assess the value of performance, protest against violations, and enforce. Thus, the cost of enforcement under the Eroding Rights regime would normally exceed the cost under the Fixed Rights regime,

which would make entitlements less valuable under the Eroding Rights regime.

The effect of retrospective suits can also be significant when considering the rightholder's costs of monitoring her entitlement and assessing any existing level of breach. Under the Eroding Rights regime, the rightholder will have to constantly monitor her entitlement, otherwise she may overlook some violations and may suffer the erosion. Under the Fixed Rights regime, the rightholder can potentially delay her monitoring actions until the last period, at which point she can conduct a one-time assessment of the cumulative value of breach. This saving in monitoring effort is a net benefit attributed to the Fixed Rights regime.

It is perhaps this monitoring concern that can explain the widespread practice under which parties usually incorporate a no-waiver provision in their contracts, effectively opting out of the course of performance default rule. It might be misguided to conclude from these no-waiver provisions that the erosion mechanism per se is undesirable. More likely, these provisions arise as a way to avoid excessive enforcement costs associated with an erosion regime. In fact, what the promisee is gaining by insisting on such a provision is the saving of monitoring costs.

4.2 Income value versus stock value from assets

Owners of assets enjoy both the ‘stock’ value and the ‘income flow’ from their assets. If, say, a trespasser enters the land, she extracts some of the income flow (the instantaneous use and enjoyment of the asset), as well as threatens -- through the statutory limitations rule -- to diminish the value of the land as stock. Similarly, a lease contract provides the lessor with an income flow (the periodical lease payments) as well as stock value (the sale value of the asset given its terms of occupancy). The irrelevance result obtained in the analysis applies only with respect to the present value of the income flow: a rightholder will enjoy a fixed value of income

flow from her asset, independent of the legal regime (and equal to the full income flow minus the litigation costs). However, the neutrality result does not hold with respect to the value as stock. Here, the rate of erosion, i.e., the length of the limitations period, might affect the value of the asset. At the extreme, a rightholder that cares only about the stock value, will be indifferent to ongoing violations as long as they do not erode the stock value. Erosion rules would thus make the rightholder worse off.[17]

For example, property regimes that set different limitations periods vary with respect to an important factor -- the frequency in which eviction suits have to be brought. Under a 20 year limitation, the owner needs to enforce once every 20 years, whereas under a 5 year limitations she needs to enforce four times every 20 years, quadrupling her cost of enforcement. Hence, "absentee owners" who may enforce only to protect the stock value of assets will be worse off under a short limitations period. Similarly, parties often include certain contractual provisions as a security measure to be applied only if the relationship runs afoul. Prominent examples are debt-acceleration clauses in mortgage contracts, who allow lenders to realize securities after any minor default. Many breaches of debt payment obligations (e.g., minor delays) are not costly as long as the relationship is maintained. The income loss borne by lenders is negligible. However, the stock value of acceleration provisions, accruing if the borrower bankrupts, could be substantial. Unless breach leads to the erosion of the provision, the promisee will have no incentive to enforce. Hence, erosion rules induce more costly enforcement.

4.3 Accelerated Erosion Rules

The informal analysis in Section 3 above may be understood to argue that for all conceivable erosion rules the value of the entitlement will be unaffected. This is too broad an

interpretation. Instead, what could analytically be proven is that within a *family* of erosion rules the value of the entitlement is unchanged.[18] In fact, all erosion rules that establish that at any point in time, the legal right equals a *weighted average* of the formal entitlement and the past performance, would lead to the same value for the rightholder, regardless of what the actual weights might be. However, some erosion rules are not part of the "weighted average family" of rules, thus the irrelevance result would not apply to them.

For example, suppose the course of performance rule stipulates that in the event that the promisor delivers at period 1 less than the 100 promised, say v, and the promisee acquiesces, the period 2 obligation will then be completely eliminated (namely, the promisee will receive 0 at period 2). This rule is not part of the "weighted average family" of erosion rules because the period 2 duty is not a weighted average of the promised and past performances (100 and v). Under this rule, we can easily verify that for any period-1 delivery $v < 100$, the promisee will sue immediately to avoid the harsh period-2 consequence. Thus, under such an extreme erosion regime, the promisee in fact gets delivery of 100 at period 1 and 70 at period 2, improving her position relative to the Fixed Rights regime or relative to the weighted average Eroding Rights rules. The credibility of the threat to sue effect which arises from such harsh erosion regimes is so powerful to prevent any erosion from occurring. Metaphorically, if a parent who lets a child commit a minor violation of a domestic norm expects a collapse of the entire family discipline structure, the parent will take extreme "anti-erosion" measures and no violation will occur.

While such extreme erosion rules are not a common feature of Law's repertoire, some mild versions of non-weighted average rules might appear in practice. For example, legal rules might translate the rightholder's acquiescence to breach as legitimizing similar breaches in a broad

set of circumstances, broader than within the ongoing relationship with the specific violator. One such instance is contract law's doctrine of course of dealings. A promisee who fails to enforce against breach might see her rights erode in present and in future contractual relationships. So much may be at stake that the promisee will take every measure to secure perfect tender. Unlike a no-erosion regime, the acceleration rule prevents any deviation from occurring.

Another prominent instance in which accelerated erosion occurs is intellectual property's doctrine of abandonment, in which unenforced infringement by a few violators may lead to the loss of a trademark entitlement *in rem*, against the rest of the world. For example, violations of a trademark can "genericide" the brand name, i.e., make it so commonly used so as to describe the generic object, allowing competitors free use of it (McCarthy, 1984). In these instances, and in many others, the rightholder has more to lose as result of acquiesced breach, as it may jeopardize its rights not only within one ongoing relationship, but within many -- if not all -- its relationships. Having more at stake, the rightholder will do more to preserve its rights (e.g., Coca Cola sending investigators to sample beverages served as "Coke".) The credibility of the threat to enforce is bolstered, sufficiently to prevent erosion altogether.

4.4 Imperfect Information

The irrelevance result was derived under assumptions of perfect information. In practice, however, various forms of imperfect information might arise. Rightholders might have imperfect information regarding the occurrence of violation. Violators might have imperfect information about the likelihood that their acts will lead to a costly legal dispute. Courts might have imperfect verification skills and might make erroneous judgments. And third parties might have imperfect information as to the eroding stage of an entitlement when purchasing it. How would these

imperfections affect the irrelevance result? While a full analysis merits a more rigorous treatment, a few intuitive observations can be made.

4.4.1 *Imperfect detection*

Suppose that the rightholder has imperfect information as to whether or not a violation is occurring. If her detection skill is high, violators will not risk litigation, and will commit the violations only to the extent that, even if detected, will not trigger suit. In this case, the incentives to commit violations will be the same as under the perfect detection case, and the irrelevance result remains. Alternatively, if the detection skill is known to be sufficiently low, violators might commit bolder violations, in which case the rightholder will be worse off under an erosion regime. Intuitively, the rightholder's failure to detect violation would become more painful under the erosion regime, as it might actually lead to erosion. This is an erosion effect that is not countered by a credibility of threat to sue effect.

When the rightholder has imperfect detection skill, it is natural to inquire whether her incentives to monitor would be identical under all regimes. That is, the choice of regime might affect the cost a rightholder might be willing to spend in monitoring, thereby making the detection likelihood endogenous. It may be conjectured that under an Eroding Rights regime the risk of erosion of the right would drive the rightholder to invest more in information so as to observe violations when they occur. However, the analysis in this paper suggests that this conjecture is not always valid. An individual would invest more in information about breach only if the value of information is greater. Under the Eroding Rights regime, the value of information would be greater at early stages relative to the value under the Fixed Rights regime, since the information is utilized to protect the future entitlement as well. But at late periods the value of information under

the Eroding Rights regime would become smaller, as the right has been subject to erosion. As long as the discounted value of loss from breach is the same under all regimes, the incentives to monitor would be identical. However, if her detection skill is low, so that the rightholder is subjected to more value extraction under an erosion regime, She will be led to monitor more intensely. It is the saving of this extra monitoring cost that makes the Fixed Rights regime favorable.

4.4.2 *Imperfect anticipation of suit*

Another source of uncertainty arises on the part of the violator, who may be imperfectly informed as to whether or not the violation would lead to suit. The violator may be innocently uncertain as to "boundaries" of the right, or she may be uncertain whether it will be in the interest of the rightholder to bear the cost of enforcement. These uncertainties will affect the benchmark analysis in that excessive violations might often occur, resulting in actual litigation. They may very likely also affect the degree of violations that would occur. But they will *not* alter the basic insight, that all regimes lead to the same amount of violation. The violator's imperfect anticipation of suit may at times lead to "too little" breach, relative to the full information case, overestimating the rightholder's tendency to sue, or it may lead to "too much" breach, underestimating the tendency to sue. But the underlying phenomenon, that the credibility of the threat to sue is fueled by the magnitude of anticipated erosion, is unaltered, preserving the irrelevance result.[19]

4.4.3 *Court errors*

Courts may be unable to accurately verify the magnitude of breach or the length of time in which violation occurred. Even if they are correct on average, random errors may affect the

value of the right. Under the Fixed Rights regime, the rightholder suffers from unfavorable errors just as much as she benefits from favorable errors. Under the Eroding Rights regime, however, if courts make erroneous judgments as to the past length of violation (say, in determining whether a new course of performance has crystallized), the favorable and unfavorable errors do not balance out. Overestimating the elapsed time is asymmetrically costly, since the rightholder -- being perfectly informed ex ante -- is unlikely to rely on underestimation errors and will usually bring suit in time. In similar fashion to a familiar insight (Shavell, 1992), such errors would generate a precautionary incentive to sue, in this case to sue earlier rather than optimal, resulting greater litigation burden on the rightholder.

4.4.4 *Buyers' imperfect information*

An important benefit from an entitlement is the ability to sell it. Potential buyers may often have imperfect information about whether the entitlement has been eroding. For example, buyers of land may not know the magnitude and history of an ongoing trespassing; assignees of contractual rights may not know the ongoing course of performance. Under the Fixed Rights regime, buyers will not be affected by this missing "quality" information, as it would not have an influence on the value they are receiving. However, under the Eroding Rights regime, buyers will be suspicious about the value they are receiving, creating a standard adverse selection problem. Further, if the rightholder expects future buyers to be unable to observe her efforts to enforce against violations, her incentives to enforce (i.e., the credibility of her threat to sue) will be diminished. Thus, the erosion feature hurts the rightholder in two manners: reducing the tradeability of her entitlement, and -- whenever she would potentially sell it -- reducing its value.

5. APPLICATIONS OF THE ANALYSIS

The analysis in this article suggests that legal rules which lead rights to erode as a result of uncontested breach may not have the obvious effect they are believed to have -- the effect of diminishing the expected value of the rights. The erosion property increases the stakes to the rightholder, thus inducing her to take more anti-erosion measures, which in turn restrains the opponent's opportunism. If any effect could arise from erosion rules, it must be attributed to the enforcement properties associated with each rule. The following discussion examines several legal implications of this insight.

5.1 Adverse Possession Revisited

The doctrine of adverse possession and various related doctrines in property law, share the feature that the rightholder's claim to her asset erodes after a given statutory limitations period, if the rightholder allowed an infringement to occur without seeking an injunction. Since the property owner must incur non-trivial costs to verify, sue, and evict an adverse possessor,[20] she may often opt to ignore such violations of her exclusive rights. What the analysis here implies is that the shorter the statutory limitations period, the more driven will the owner be to prevent infringing uses of her asset. She will be less lenient in addressing violations when the law interprets such leniency as a permit to continue the violation indefinitely. Thus, the potential erosion is countered by the increased motive to guard against violations. The erosion phenomenon in itself is not, then, value diminishing.

This insight, that the erosion effect in the law of adverse possession encourages land owners to enforce earlier, is often overlooked in the legal literature. In fact, a common understanding is that adverse possession coupled with a short statutory limitations period will

reduce -- rather than, as I argue, increase -- the tendency to sue. This branch of the literature has consistently ignored the strategic effect arising from the adverse possession rule -- the increased stake which could dwarf, in relative terms, the cost of litigation. Put differently, what commentators have by and large overlooked is the *endogeneity* of the landowner's incentive to sue (but see Rose, 1985). Implicit in most traditional accounts of the doctrine is a conception that the timing of the suit by the landowner is determined randomly (say, when the landowner "happens" to notice the violation) or exogenously (how long it takes to prepare and file a suit). This view assumes that the adverse possession rule itself does not affect the timing of the suit. In fact, various authors explicitly highlighted the hypothesis that costliness of suit can explain the variation in adverse possession statutes among states (Netter et al., 1986; Ellickson, 1986). That hypothesis ignores the possibility of a reverse causality, that is, that adverse possession statutes can explain the variation in enforcement expenditures. It ignores the added incentive for a quick, deliberate action, once the landowner is subjected to the risk of erosion. To begin with, owners who engage in active possession of the property will not be affected by the doctrine, as their incentives to evict stem directly from their concern for the income flow, not the stock value of the property. It is only owners who are maintaining title for its stock value who might be affected by the doctrine. While these owners might detect violation at too late a stage to prevent erosion and will then have no motive to adjudicate title, this outcome becomes less likely by the mere existence of the erosion rule. Thus, adverse possession may not necessarily reduce litigation, but may instead increase it. If, as a society, we regard litigation with disfavor, we may be misguided to believe that allowing rights to erode would resolve disputes with less litigation.

More importantly, perhaps, the analysis sheds light on the traditional understanding that

adverse possession is instrumental in facilitating flexible and “informal” reallocations of assets to individuals who can best utilize them. (Holmes, 1897; Cooter and Ulen, 1988). According to this ex post view, by awarding supremacy to actual use over historic title, assets are shifted to the hands of more productive users. Again, this rationale overlooks the ex ante effects of the erosion rule. Under the adverse possession regime, even a landowner that does not engage in active exploitation of her property may seek to evict possessors, whereas absent an erosion risk she would potentially have allowed the efficient possessor to quietly maintain use. Prima facie, the core irrelevance result implies, contrary to arguments suggested by others (Merrill, 1984; Posner, 1998), that erosion rules are not a useful substitute for market transactions in allocating rights efficiently. At most, the analysis confirms an aesthetic virtue of adverse possession: its effectiveness as a title clearing device. The added incentives for owners to evict reduce the potential gap between ownership and possession. As argued throughout this article, the willingness of the law to alter rights so as to reflect reality in itself reduces reality's deviation from the formal allocation of rights.

To what extent, then, does adverse possession succeed in resolving the problem of the “absentee owner”? On the one hand, it would seem to provide a desirable solution to this problem, by shifting assets away from such owners. On the other hand -- as the irrelevance proposition suggest -- adverse possession also changes the magnitude of this problem by inducing more owners who would otherwise be absentee to monitor their assets merely for the purpose of preventing erosion. The bottom line is: assets may indeed be shifted away from absentee owners, but not because of the obvious reason, i.e., not because of the erosion mechanism. Adverse possession will facilitate the movement of assets away from absentee owners because it makes

enforcement of absentee ownership more costly. An absentee owner who is holding the asset solely for its stock value and is not utilizing it will be worse off under a short limitations period, having to commit a more frequent effort to monitoring and eviction. As the analysis in Section 4 suggests, the erosion rule's redistributive power is solely a function of its effect on enforcement costs.

5.2 Formalism versus Flexibility in Commercial Law [21]

Well rooted in modern commercial law is the realist, non-formalist spirit which incorporates the reality of commercial life into legal doctrine and allows this reality to trump and vary formal allocations of entitlements. Courts are instructed to discover and enforce immanent business norms from a careful examination of ongoing practices and resolve disputes on the basis of such "situation sense" (Llewellyn, 1960). Whenever there is a gap between the changing commercial reality and the rigid contractual provisions, the charter of the law is to reflect the commercial experience and allow it to erode the "historical" entitlements.

Lisa Bernstein was the first to argue that this approach, so rhetorically devoted to flexibility, in itself alters the reality of the transactions and fosters rigid commercial behavior. "The drafters of the Code ... failed to recognize that this approach would fundamentally alter the very reality they sought to reflect ... and would undermine the Code's own stated goals of promoting flexibility in commercial transactions". (Bernstein, 1996). Rather than promoting flexibility in commercial relations, the law's search for immanent business norms through doctrines like course of performance implements rigidity. This Article reinforces her intuition, but qualifies her conclusion. True, parties will be less likely to exhibit flexibility and to overlook deviations from their formal entitlements, fearing the erosion effect that might be set off. This would reduce the

adaptability of individuals' actions to changed circumstances. But, at the same time, the adaptations that may still occur -- albeit more minor -- will be integrated into the law and will change the formal legal entitlements, thereby increasing the elasticity of legal obligations. Thus, the irrelevance theorem suggests that the law's willingness to incorporate past practices into the agreement does not, in itself, affect the amount of flexibility. At first cut it would seem that neither the drafters of the Code who envisioned greater flexibility, nor Bernstein who projected greater rigidity, were right.

However, as the theory implies, erosion rules may affect the amount of flexibility through their effect on the costs of enforcement. In particular, a party who stands the risk of forfeiting her rights if she lags in enforcing against breach will need to spend greater measures in monitoring performance and ensuring conformity to the contract. Since monitoring is costly and imperfect, the rightholder would be better off having to commit less effort to monitoring. This extra burden of monitoring is a cost attributed directly to the integration of past practices into legal relationships. Monitoring costs -- and not erosion per se -- are one reason explaining of the parties' distaste for doctrines like waiver and course of performance.[22]

The framework developed in this paper is helpful even in situations in which, unlike the assumption in the model, the promisee did not pay the full contractual price upfront. Admittedly, the promisee could, in the presence of eroding deliveries, respond by reducing the amount she pays per delivery. That is, de facto enforcement could be achieved in the inexpensive manner of price adjustment, rather than in the expensive manner of rejection or litigation. Likewise, even the promisee who paid everything upfront can avoid repeated costly enforcement by merely manifesting her protest or objection to the non-conforming tender and subsequently suing once.

Indeed, these factors could potentially diminish the adverse effect of the erosion rule. Yet it is still the case that the remedial measures -- cheap as they might be -- must be taken swiftly. Erosion rules, especially the doctrine of waiver, create urgency. Promisees would have a shorter period of time to verify the infraction. In most real-life situations, tender might not be perfect due to non-opportunistic reasons. Thus, detection and verification of non-conformity requires detection effort, so as to isolate the infractions that merit an immediate response. This added burden of enforcement is eliminated under the Fixed Rights regime. One way or another, the theory suggests that the only relevant inquiry is into the costs of enforcement associated with various rules.

5.3 Estoppel and Reliance

A common legal mechanism that creates erosion in a discontinuous manner is the doctrine of estoppel. A party is prevented from claiming her right if, by her past conduct, she led another party to reasonably rely on her not making such a claim. Estoppel, it may be argued, is detrimental to the rightholder, subjecting her to the possibility of losing her right. If she does not stand on guard and deny others from infringing upon her entitlement, she may subsequently lose it or be procedurally denied from claiming her exclusive rights. The analysis in this Article indicates that the danger of becoming estopped would induce the rightholder to be more alert and to avoid inducing reliance. As was demonstrated, the two effects that estoppel creates -- the erosion effect and the anti-erosion incentives -- are equally powerful. Hence, legal rights that may be subject to erosion through estoppel are not necessarily less secure or less valuable than legal rights that are free of the application of this doctrine. To opportunistically relying parties, the doctrine of estoppel is unhelpful.

However, the doctrine of estoppel may serve a useful role in inducing desirable reliance. Relying parties may be taking actions that are value-enhancing by investing resources in appreciating the property. That is, breach may be more than merely a transfer, but an occasion in which further investment is sunk and the social pie is increased. If the relying party is acting innocently, being imperfectly informed about the actual boundaries of rights but being rationally aware of her uncertainty, she may nevertheless exercise excessive caution in setting her reliance investments. This inefficiency can be significantly alleviated by the erosion rules.

Consider, for example, a party (“the inventor”) who creates an idea but is uncertain whether another party (“the owner”) already holds a patent on this same idea. As it is costly to verify original intellectual ownership (due to, say, the complexity of the patent registry), the inventor is uncertain as to whether she is infringing on someone else's rights, and if she is -- whether she will be detected. Under this uncertainty, she has to decide how much to invest in production and distribution of a product based on the idea. If the owner is not utilizing the idea to produce a product, it might be socially desirable for the inventor to do so. However, these are precisely the situations in which the inventor will more likely be unaware of the existence of a conflicting entitlement. The inventor may fear that if she were to pursue specific investments and develop a profitable product line, there is a chance that the owner may subsequently appear and extract her revenues. This classic hold-up problem is aggravated the longer the period during which the owner can wait, allow large investments to be sunk by the inventor, and only then detect the infringement and file a damages claim. A short limitations period under the estoppel doctrine would, under these circumstances, be socially desirable, as it would encourage the rationally cautious inventor to make more value-creating investments.

This insight is an application of the more general observation, that when the rightholder is imperfectly informed about ongoing violations the erosion rule becomes distribution-relevant and could shift value from the rightholder to the violator. Since it is always true that one's incentives to invest in an asset are dependant on the fraction of the created value that one can subsequently enjoy, it is not surprising that as the value is being shifted in favor of the violator her incentives to invest and improve the property are increased.

5.4 Erosion of Public Entitlements

The analysis of eroding private entitlements may, in theory, apply equally well to eroding government, or public, entitlements. Statutes, for example, might be perceived as the entitlement of the government who enacted them. Under various practices, the law might allow statutes to erode and lose their efficacy if violations of the statutes are consistently not enforced. A conventional view is that such erosion diminishes the strength of statutes. This view overlooks the incentives created by the potential erosion to protect the statute. The government might seek to prevent erosion by maintaining a more rigorous enforcement of the statute.

Specifically, imperfect enforcement of rules may often be attributed not merely to the high costs of enforcement, but rather to intra-government moral hazard, i.e., to conflicts of interests between the legislature (or the regulator) who enacts the statute and an executive branch who is supposed to implement it. In this setting, when enforcement becomes lackluster due to the conflicting agenda of the executive branch and the statute faces the risk of erosion, the legislature would apply greater pressures on the executive branch to commit enforcement effort. Since lack of enforcement has a potential long-term effect on the validity of the statute, it may be more difficult for the executive branch to quietly dispense with the statute. Here, the credibility of

the threat to sue effect is operating in the interaction between the enforcement agency, who is passively seeking erosion, and the legislature who is intent on implementing the statute. Thus, erosion alone does not make a statute weaker or less durable. Only if doctrines of erosion affect the ability of the legislature to monitor enforcement policies, would they weaken the statute. If, say, lackluster enforcement is difficult to detect, erosion could indeed hurt the efficacy of statutes. Thus, interest groups who are seeking to preserve a specific statute would not need to challenge the erosion doctrine directly. Instead, they would be better off detecting and cataloging non-enforcement, thereby facilitating the implementation of anti-erosion measures.

The framework of analysis proposed in this article can be applied to rationalize erosion doctrines governing other public engagements. Notably, government-held property is immune from the application of adverse possession. Similarly, in civil litigation the government enjoys longer limitations periods.[23] Underlying these practices is the perception that it is more costly for the government to enforce against violations of its entitlements. Because of the vast magnitude of government activity, and perhaps due to intra-government agency costs, detecting violations and enforcing in time is more costly. Cost of enforcement, not substantive ownership concerns, are ordinarily invoked in this context to explain society's rejection of the erosion idea.

5.5 Rent-Seeking and Public Policy Transitions.

The legislature often changes its policies in a way that adversely affects private parties. Some changes in policy, such as debt management, require compensation of the affected parties, whereas other changes, such as zoning regulation, do not.[24] The affected parties may engage in rent-seeking behavior, i.e., expend resources in effort to influence the legislature's policy and the proposed transition in their favor. Whether or not the policy could\ later be freely revoked by the

legislature would affect the incentives of interest groups in engaging in rent-seeking behavior. It has been conjectured that allowing the legislature to change policies without compensation would increase rent-seeking (Ramseyer and Nakazato, 1989). Interest groups will spend more to oppose (or propose) the changes of the policy, whereas in the presence of compensation they will not.

If we view the favorable policy as the “entitlement” of an interest group, and a change in the policy as violation of the entitlement, the analogy to erosion rules becomes straightforward. An Eroding Rights regime is one which allows the legislature to change a policy without compensating the losers, whereas a Fixed Rights regime is one which forces the legislature to abide by the policy or pay compensation. In this setting, rent-seeking expenditures are analogous to the cost of enforcement of an entitlement. The irrelevance theorem suggests that interest groups will engage in as much rent-seeking, and changes of policies will occur to identical extent, regardless of the legal transition doctrine. Under the Eroding Rights regime that permits the legislature to revoke its policies without compensation, interest groups will spend less initially, at the time in which the policy is proposed, and more subsequently, at the time in which the policy is reevaluated. Under the Fixed Rights regime that requires compensation of entitled parties, the interest groups will spend more initially and less (or nothing at all) subsequently. But the total amount of rent-seeking at the initial and subsequent stages will be the same under both regimes.

This rent-seeking neutrality result has recently been articulated by Fischel and Sykes (1999), in the context of the government's power to modify its own contracts or to rescind an interest group deal without compensation. These authors note the two conflicting effects on interest groups' rent-seeking behavior. They argue that the “inalienable powers” doctrine, which permits revocation, “...will plainly reduce rent-seeking in pursuit of a given deal prior to its

consummation. But ... will result in more rent-seeking by the beneficiaries of the deal in future periods, as they hope to prevent any change in its terms... Conceivably, everything 'comes out in the wash' and the present value of rent seeking expenditures... will be the same either way." However, they proceed and argue that a rule which prohibits the revocation of government deals is likely to increase the returns to rent-seeking, since it allows interest groups to pick its best opportunity to strike, i.e., pursue rent-seeking whenever the likelihood of success is highest. Their conjecture is consistent both with the conclusions and the methodological perspective advanced in this Article. If interest groups' entitlements can erode, and if the interest groups can "enforce" their entitlements through rent-seeking behavior, the overall value of the entitlements will not depend on the substantive erosion rule, but on the effectiveness and costliness of the enforcement measures under different regimes. Fischel and Sykes' (1999) argument mirrors the general claim in Section 4.1, that enforcement cost are endogenous and that Fixed Rights regimes economize on enforcement costs. Indeed, if revocation increases the costliness of rent-seeking, it will reduce the value of the entitlements and accordingly reduce the magnitude of rent-seeking behavior.

5.6 The Emergence of Norms

A growing recent scholarship has examined the role of non-legal norms as a substitute or complement to the law in governing behavior (e.g., *Symposium: Law, Economics, and Norms*, 1996). One of the issues this literature has explored is the emergence of norms. The process of emergence that several authors describe is an evolutionary convergence process: individuals react to their environments in a self-interest promoting manner, and as soon as there is sufficient persistence to a particular mode of behavior, it becomes a norm (Cooter, 1996; Picker, 1997). Since the process of clustering around a common practice is gradual, one might wish to ascribe

importance to the speed by which a practice becomes a recognized norm of conduct. For example, how long does a commercial practice need to be followed before is could be considered a usage of trade or a course of dealing? Or, if a Monday morning class lecture begins five minutes late, time and time again, how long it takes for the five minute delay to become the norm and have everybody follow it?

At what point in time would a competing practice replace an existing norm depends on the collective rule of norm recognition, which prescribes the minimal required adherence to the practice. An implication of the analysis in this Article is that the collective rule of norm recognition may not be as important as it might otherwise be perceived. When norms erode fast, namely when a practice can become a norm even if the adherence to it has been relatively short, the incentives of individuals who support the old norm and oppose the new practice would change. In the presence of quick erosion, these individuals will adhere to the old norm more strictly than they would under slow erosion, stymieing the penetration of the new practice. Thus, the norm scholarship which by and large supports the law's attentiveness to the changing reality of informal norms generally overlooks the endogenous effect that this legal endorsement might have on the emergence of new norms and practices. If, say, movements for social reform gain momentum when they are founded on emerging social norms, the incentives of opposing factions to obstruct the emerging norms will increase.

5.7 Regulation of Addictive Substances

A different phenomenon which resemble erosion is *addiction*. Addiction occurs when a series of repeated actions makes it costlier for the actor to avoid the same action in the future. The repeated past actions are analogous to repeated past breach. Erosion makes it harder to

oppose future breach after a series of repeated past breaches occurred, just as addiction makes it harder to oppose or refrain from a future action after a series of repeated actions have occurred in the past. When individuals face an addictive product, it is commonly perceived that they are led to use it more, due to the "addiction effect" (analogous to the erosion effect). What is sometimes overlooked is that rational individuals will use the addictive product to a lesser extent in the first place, anticipating and fearing the addiction effect. This reluctance to begin using the addictive substance can be labeled the "precautionary effect" (analogous to the credibility of threat to sue effect). Thus, the more addictive a product becomes, the greater will be the addiction effect, but also the greater will be the precautionary effect. The irrelevance result can be interpreted to suggest that rational individuals are unaffected by the degree of addictiveness of a product. The overall amount of use of a product is fixed, independent of its addictiveness. An addictive product will be used less in "early" periods and more in "late" periods relative to a non-addictive product, but the overall use across time will be the same.

This insight has an implication with respect to the public regulation of addictive substances. If society is intent on protecting the public from becoming addicted to a particular addictive product, it may not necessarily need to regulate the production or distribution of the product. The analysis implies that addictive products can distort the overall amounts of consumption only if individuals are uninformed about this "erosion" feature and thus are not exercising the precautionary effect. What public policy needs to do, in a sense, is to decentralize counter-actions to addiction by empowering individuals to exercise the precautionary effect. Since informed individuals will, in anticipation of the addiction effect, reduce their consumption of a product, public policy need only be aimed at providing accurate addictiveness information to the

public.

6. CONCLUDING REMARKS

6.1 Normative Analysis

This article examined incentives arising out of rules of erosion. It did not attempt to offer an evaluation of the desirability of such rules. The main proposition is a distribution-neutrality argument, and has no direct bearing on efficiency. In one sense, however, the proposition has normative welfare implications. It suggests that some of the normative qualities that other commentators have attributed to erosion rules may *not*, in fact, arise. Thus, it may be misguided to base the preference for or against an erosion rule on such normative considerations, whether they are distributive or welfare maximizing ones. For example, if the statutory limitations period in property law is shortened prospectively, with the intention that this reform will quite title and reduce litigation or shift assets to more productive users, the analysis implies that this result may not follow, as landowners will have an increased incentive to evict trespassers.

Generally, to the extent that erosion rules have a lesser ability than previously thought to affect the overall distribution of value among parties, there are two remaining normative effects that such rules may have. First, it was demonstrated that the rules have an effect on the sequence of performances across time. A rule designating a fast rate of erosion will lead to more compliance at "early" stages and less compliance at late stages, relative to a rule with a slow rate of erosion. This time-profile of conduct may itself have a normative ranking, due to various factors (e.g., "consumption smoothing" considerations, time-discounting on the part of violators, and the like.) Second, the analysis clarified that the main parameter determining the overall value

of the right to the rightholder is the variable broadly defined as litigation costs. If the normative hierarchy of different rules of erosion is based on the protection levels that they provide to rightholders, then the rules should be ranked according to their associated enforcement burdens. That would explain, for example, why erosion rules in commercial law have come recently under attack, and why society's preference is shifting towards quick erosion rules in property law.

6.2 Erosion and Non-Opportunistic Behavior

Breach of promises or violations of rights are not always driven by opportunism. Oftentimes, the breach or violation may indicate a sincere difficulty in maintaining full compliance. It may be in society's interest to allow flexibility in the enforcement of entitlements, so as to avoid excessively expensive compliance. That is, unlike the basic assumption of most of the analysis above, breach may not be a zero-sum event, but may be welfare-increasing. It has been argued that the rule of erosion embodied in contract law's course of performance doctrine will pose an obstacle for such desirable flexibility and efficient modification of obligations (Bernstein, 1996). If, when the promisee acquiesces to breach and makes concessions to the promisor in recognition of the promisor's sincere difficulty to deliver, she may be subjected to an erosion of her right, the promisee will be more reluctant to make such concessions. Hence, rules that allow rights to erode even as a result of a *friendly*, negotiated, breach may indeed serve as an obstacle to cooperatively agreeing on ad-hoc, value-increasing, concessions. Similarly, trespass and violation of property rights are often efficient, even if they bypass the market, and would informally occur, but for the erosion consequence under property law.

6.3 Extensions

The analysis in this paper can be extended in several directions. Taking the irrelevance result seriously, one direction can explore the robustness of the result in more rigorous manner. A formal model could verify (and show the limits) of some intuitive claims made in Sections 3 and 4 (Ben-Shahar, 1999b). Another direction would extend the analysis analytically, to focus on reliance decisions. By showing that doctrines like waiver and estoppel could affect the incentives of parties -- legitimate owners or inadvertent violators alike -- in making reliance investments, the analysis could explore the desirability of such investments and the mode by which they are encouraged. Lastly, the theoretical arguments presented in this Article could be applied to various doctrinal issues. Several such applications were proposed in Section 5, but the list is far from exhaustive. The incentive effects that were identified as a general phenomenon can be applied to shed light on a large and disperse body of doctrine.

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Endnotes

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1. As an English court explained, in deciding to protect statutes from erosion, "James II lost his throne, and one of the causes of it was that he took upon himself to dispense with the operation of Acts of Parliament... I take it that the London County Council is in no better position than James II". (*R. v. London County Council* [1931] 2 K.B. 215, 226).

2. This claim will be qualified formally in the analysis below. It will be shown that even under the simplifying assumptions, the "irrelevance" of the legal rule applies only within a well-defined (and broad) family of rules, that includes at least most of the rules that are plausible in practice.

3. Enforcement costs are interpreted in this analysis to include any cost an entitlement holder has to incur in order to enjoy an unscathed entitlement. These costs include the ordinary litigation costs that parties incur in legal disputes. This is the type of costs on which the litigation and settlement literature focuses (Cooter and Rubinfeld, 1989). The term litigation costs may also be interpreted more broadly and apply to costs that may be incurred outside the legal system, such as the cost of self-help in property and national disputes, the costs of conveying or

registering messages of displeasure with rights' violations, and, importantly, the cost of privately verifying the nature and the magnitude of the violation (e.g., the cost of finding out that a neighbor is trespassing on one's land).

4. For prominent examples, *see* de Mesa (1998).

5. *See* UCC §2-208(3) and official comment 3. To illustrate this application of the course of performance doctrine, consider the case of *Nanakuli Paving & Rock Co. v. Shell Oil*, 664 F.2d 772 (9th Cir. 1981). In this case, the express terms of the agreement between a supplier and its client maintained that the supplier can change the price unilaterally at any point in the future. When the first two instance of a price increase occurred, the client requested the supplier to provide an interim "price protection", that is to apply the old price for extended time, and the supplier acquiesced. The client claimed, and the court approved, that by course of performance, it is entitled to "price protection" any time the supplier posts a price increase, without the supplier's consent. In numerous other cases courts have found course of performance to alter the express terms. (White and Summers, 1995).

6. *See* UCC §2-209(4). In *Wisconsin Knife Works v. National Metal Crafters*, 781 F.2d 1280 (7th Cir., 1986), Judge Posner held that a conflicting practice can operate as waiver even in the presence of a "no-oral-modification" clause, if the practice has been relied upon.

7. Similar erosion doctrines of international law govern land disputes among states. For example, the doctrine of prescription holds that continuous and undisturbed exercise of sovereignty over a territory could, if sufficiently lengthy, lead to the acquisition of the territory, even when this territory officially belongs to another entity. (Jennings,1992). Furthermore, when

states allocate rights through treaties, the principle of "subsequent practice" is a means to alter the explicit contractual allocations (Fitzmaurice, 1986).

8. Laches is a principle of equity stating that neglect to assert a claim for a sufficiently long time might cause prejudice to adverse parties. "Those who slumber on their rights might be estopped from reclaiming them." (*Black's Law Dictionary*, 1990).

9. Generally, being equitable defenses, laches and estoppel do not prescribe a fixed period, but condition the length of the period on relevant circumstances (Goldstein, 1989) As one court explained: "A few weeks delay in the case of a song so ephemeral as this may have the same effect as 16 years, when the publication is a legal encyclopedia in 30 volumes" (*Haas v. Leo Feist, Inc*., 234 F. 105, 108 (S.D.N.Y 1916)).

10. The origin of this doctrine is traced to ancient Roman law (Schiller, 1938). It traditionally enjoyed broad recognition in European continental law (Kelsen,1945).

11. Even under regimes that allow parties to seek a one-time judgment and to apply it prospectively to all future violations, the assumption above is applicable. The litigation costs that have to be incurred repeatedly, each period anew, are the costs of executing the declaratory judgment. Only in situations in which a party can sue once and get remedies for all past breaches does this assumption fail. *See* Section 4.1, *infra*.

12. In reality, under the UCC, course of performance has more hurdles to clear before trumping or varying the express terms of the contract. First, it is usually the case that more than one instance of breach is required (Farnsworth, 1990; White and Summers, 1995). Second, it is usually enough for the buyer to register her displeasure with the first shipment to avoid having

the course of performance control the second shipment. UCC §2-208(1) refers to "acquiescence without *objection*" -- not to acquiescence without suit. In this case, the cost of litigation in the example should be interpreted to stand for the cost of conveying the objection message.

13. The analysis here invokes the standard treatment of compliance under costly litigation regimes. *See, e.g.*, Bebchuk (1996); Polinsky and Rubinfeld (1988).

14. An example of a law that sets a moderate rate of erosion is a rule that requires not merely one, but two consecutive breaches to amount to a course of performance. This is considered the minimal requirement under the UCC's doctrine of course of performance (Farnsworth, 1990). Under such a law the last period's delivery is not accorded the full weight in determining the new duty, but only a partial weight.

15. It is assumed in this example that when the contract stipulates non-uniform deliveries, the course of performance regime would operate as follows. The period 2 delivery will be adjusted downwards by precisely the amount was waived by the buyer in the previous period. Thus, for a contract stipulating x_1 and x_2, after a period 1 delivery of $v_1 < x_1$ the promisor will be under a period 2 duty to deliver only $x_2 - (x_1 - v_1)$.

16. The analogy to the Coase Theorem is provided only to illustrate the implication of an irrelevance proposition. Needless to say, the irrelevance proposition developed here is far narrower in its application: the Coase Theorem potentially applies to all legal rules, whereas the claim here applies only to erosion rules. Within this family of rules, however, the irrelevance claim here is stronger than the Coase Theorem since it argues that the rules are irrelevant with

respect to both their efficiency and distributive effect.

17. It should be pointed out that under ordinary conditions of asset valuation analysis the stock value of an entitlement would equal precisely the discounted sum of the flow of income. Properties do not have a stock value per se; their sale value reflects the utilities that can be derived from them across time. Under these conditions, absent an independent stock value, the irrelevance result will be valid. However, in practice, rightholders often hold their assets without expecting any income value, merely in the hope of reselling and extracting capital gains. In these cases, erosion would diminish the value of the assets.

18. A formal proof of the general theorem is omitted from this Article. For a more complete and technical characterization of the robustness of the irrelevance result, see Ben-Shahar (1999b).

19. To illustrate, consider again the numerical example of Section 3 with one addition: the promisor does not know that the promisee's litigation costs are 30, and believes them to be either 10 or 50, equally likely. Under the Fixed Rights regime she will deliver either 90 or 50 each period, depending on her beliefs, leading the promisee to sue in half the cases. The promisee's overall expected payoff is ½ × 180 + ½ × 2 × (100 - 30) = 160. Under the Eroding Rights regime, if the promisor believes that litigation costs are 10, she will deliver 95 at the first period and 85 at the second, for a total of 180. But if the promisor believes litigation costs to be 50 she will deliver 75 at the first period, be sued and ordered by court to deliver 100, then -- assuming no updating of beliefs -- deliver 50 again at the second period and again be ordered by court to deliver 100. In this case, the total delivery, net of litigation costs, enjoyed by the

promisee would be 140. Thus, The promisee's net payoff under the Eroding rights regime would be ½ × 180 + ½ × 140 = 160, same as under the Fixed Rights regime.

20. Physical eviction, which is perhaps the costliest of the actions required to regain sole possession, is not ordinarily required in order to suspend the running of the statute. The common view asserts that a valid judgment or decree, even before possession is taken thereunder, suffices (*Sanford v. Herron*, 61 S.W. 839 (Mo., 1901)).

21. This Section draws on Ben-Shahar (1999a).

22. This distaste is evidenced by the practice of incorporating a no-waiver provision into standard form contracts (e.g., Hemmendinger, 1994), and more generally by the fact that the merchant law commonly rejects such doctrines (Bernstein, 1996).

23. The maxim *nullum tempus occurit regis* (no time runs against the King) barred the running of a statute of limitations against the sovereign (Dukeminier and Krier, 1998).

24. With respect to government contracts, public law doctrine distinguishes between actions that are "governmental"" versus actions that are "proprietary" in their nature. Governmental actions such as taxation, safety regulation, and police powers can be changed periodically without compensating the parties who are made worse off by the transition, whereas proprietary actions such as procurement contracts and bond covenants require compensation (Massengale, 1984).