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Omri Ben-Shahar
University of Michigan Law School, omri@uchicago.edu

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Legal Durability

OMRI BEN-SHAHAR[*]
Law and Economics, University of Michigan

This paper develops a framework to study the effects of the durability of legal allocation decisions, such as trial outcomes, regulatory enactments and property entitlements. For a party favored by the legal allocation, a more durable decision is also more costly to secure, ex ante. Thus, it is not the greater durability of the allocation that determines whether the "winner" is better off, but other factors that are affected by the durability attribute, such as the cost of securing a favorable outcome and the ability of contesting parties to affect this cost. The paper develops conditions under which greater durability is irrelevant, or even undesirable to the winner. The analysis is applied to shed light on durability doctrines relating to trial outcomes (e.g., res judicata and double jeopardy), rules and regulations (e.g., transition relief when rules change), entitlements (e.g., adverse possession and statutes of limitations), and marriages.

1. INTRODUCTION

This essay studies the incentive effects of the durability of legal "allocation decisions"--all forms of legal decisions, government policies and regulations, allocations of property entitlements, contractual rights, marriages, and the like, that distribute value between individuals. An allocation decision can be characterized by its *content* and by its *durability*. The *content* of an allocation decision describes the relative value that each of the contestants receives. The *durability* of an allocation decision describes the length of time that the allocation is expected to last. Allocation decisions may be more (or less)

durable, depending on the difficulty (or ease) with which they can be revisited and changed. Here are a few examples of durability doctrines in the law:

- *Durability of Government Policies*: Government policies can be more or less durable depending on the ease with which these policies can be modified or revoked by the government at a later stage. For example, rules determining the retroactive scope of new laws affect the durability of old laws. If the government may change the tax or zoning rules retroactively without compensating the losers, the original policy is less durable. The costlier the compensation requirement burdening a government seeking the transition, the more durable is the original policy. Or, if budgetary allocations expire periodically, they are less durable than spending programs that remain in effect until repealed, which in turn are less durable than spending programs that cannot be repealed.

- *Durability of Trial Outcomes*: Adjudication decisions by courts (including both factual determinations and legal holdings) can be more or less durable depending on doctrines such as res judicata, double jeopardy, collateral estoppel, stare decisis, the appeals process, and the criteria for a new trial. Each of these doctrines determines, in its domain, the ability or the power to revisit the content of the initial decision and to change it at a later date. The more difficult it is to revisit and modify the original adjudicatory decision, the more durable the decision.

- *Durability of Statutes and Regulation*: Legislative and other regulatory enactments are more or less durable depending on the constitutional rules governing the power of courts to review these enactments, erode them or add on to them. For example, if a firm's compliance with federal safety or disclosure regulation fully preempts federal or state courts from imposing liability in torts on the firm, the regulation (or, more precisely, the benefit allocated to the party who complies with the regulation) is more durable. Similarly, the readiness with which constitutional courts apply judicial review and overturn statutes affects the durability of the statutes and of the entitlements they allocate.

- *Durability of Under-Protected Entitlements*: Individuals' legal entitlements are often violated repeatedly without much immediate enforcement action taken by the owners. Entitlements are more durable if the owner can maintain formal ownership (and subsequently file a legal claim) even after failing to affirmatively enforce against infringements in the past. Doctrines like estoppel, adverse possession, waiver, and course of performance, which erode

entitlements when violations are under-enforced, effectively diminish the durability of entitlements.

▪ *Durability of Contracts*: Contractual rights are more durable the greater is the compensation to which the promisee is entitled in the event of breach. Government contracts, for example, are less durable if the government can breach without paying damages. In general, the closer the level of damages is to making the aggrieved party's expectation interest whole, the more durable is the contractual promise.

▪ *Durability of Marriages*: Marriages are more durable the more difficult it is to get a divorce. A no-fault divorce regime, for example, makes the marriage less durable.

This paper develops a framework to analyze these seemingly unrelated durability doctrines in a unified manner. It demonstrates that a similar incentive structure describes the behavior of rational parties competing under these allocation procedures. Using an economic model of rent-seeking, the paper demonstrates some of the ways in which the durability of the outcome affects the relative well-being of the parties involved in the allocation contest. The paper also demonstrates an important way, often unrecognized by legal scholars studying individual durability doctrines, in which durability does *not* affect the well-being of the contesting parties.

A common intuition often stated in the legal analysis of durability doctrines is the following: a party pursuing a favorable outcome—be it a budgetary allocation, an acquittal at trial, a government contract, a secure marriage, or an endowment of property—will prefer the emerging allocation to be more, rather than less, durable. From an ex post perspective, this logic is sound: other things equal, the "winner" would prefer a lasting, rather than a temporary, victory.

Other things, however, are not equal. From an ex ante perspective, the more durable an allocation is, the more difficult it is to acquire. A victory is sweeter if it lasts, but if it lasts it is less likely to arise. Because the allocation is the result of a "contest" between parties with conflicting interests, it is plausible that the competing parties will invest more rent-seeking effort when the contested allocation is more durable. Thus, ex ante, because of the increased stakes, a party might find it more difficult to secure a favorable outcome. In some settings, it will be shown, this ex ante effect of durability completely offsets the ex post gain, in which case *the overall value enjoyed by each party is independent of the durability of the allocation decision*. In fact, in these settings the only element that matters for the distribution of value is the relative effectiveness of each party's rent-seeking "capital."

The "flavor" of the intuition can be captured, although not accurately, by an example relating to the durability of goods, where the ex ante effect is more intuitively familiar. An electric battery, for example, can be more or less durable, depending on how long it can make the flashlight run. Other things equal, purchasing a more durable battery is beneficial because of the added operation time. But other things are not equal: purchasing a more durable battery would likely be more expensive, in terms of the price charged. Would you, the consumer-beneficiary, prefer a more durable or a less durable battery? If the producer's marginal cost of increasing the durability is linear, and if you the consumer have perfect information and liquidity, zero transactions costs and no discounting, you would probably be indifferent between buying one durable battery or two half-as-durable batteries (assuming that the price is competitive and reflects marginal cost.) The price of each package would, under these sterile conditions, be the same, in terms of money and other transactions costs incurred. With batteries, as with allocation decisions, the more durable object provides more value, but at the same time it is proportionally more expensive to acquire.

The formal analysis demonstrates the scope—and the limits—of this "neutrality-of-durability" intuition. It studies a set of assumptions under which some rules of durability do not matter to the contesting parties, and identifies situations in which durability *does* matter. This theoretical framework is then applied to re-examine various durability doctrines, with the goal being to explain why it has often been conjectured in the vast literatures dealing with each of these doctrines, that the doctrines may have an important distributive effect. For each of these doctrines, the analysis identifies one or more of the features highlighted by the model, dealing mainly with the costs and returns to rent-seeking effort, that explain the effect of durability. It is these features, and not the durability property per se, that are responsible for any distributive effect that durability doctrines might have. Again, in reference to the battery metaphor, the consumer would prefer a durable battery if she wants to save the transaction costs of repeatedly purchasing many short-lived batteries, or if the marginal cost of increased durability declines; but the consumer will prefer the short-lived batteries if she is liquidity constrained, or if she is unsure about her long-term need for battery power. It is not the durability alone, but rather the effect of the durability property on the broadly-defined transactions costs, that can explain the preference.

Thus, the contribution of this essay is primarily methodological. First, by unifying the framework underlying various doctrines, the analysis highlights that what appear to be unrelated problems, gathered from unrelated areas of life and the law, in fact share a common structure, which in turn permits them

to be cross-referenced, their rationales to be shared and compared, and, eventually, to economize on interpretive effort. Second, the analytical structure developed here highlights the type of factors that ought to be explored for the purpose of understanding the effect of legal durability.[2] The problems with this approach are on the one hand the lack of nuance in tailoring the model to the different realities it captures, and, on the other hand, the compromises in the modeling structure that are required to unify similar but not identical situations. Accordingly, this study is but a first step in what can eventually be a more refined and analytically rich formal study of legal durability.

2. MODEL

2.1. FRAMEWORK OF ANALYSIS

Two risk neutral parties, denoted by A and B, compete over a zero-sum allocation decision. Let W denote the value of the allocation to party A. There are two periods (t = 1,2) and the allocation W can potentially vary across periods. Denote by (W_1, W_2) the allocation decisions in the two periods. The initial, pre-contest baseline is denoted by W_0. That is, in the absence of any effort by the parties to affect the allocation (rent-seeking), party A will enjoy a value of W_0 and party B will have 0 in period 1 and 2. W_0 can represent, for example, an initial bias of the decision maker, a legal presumption in favor of one party, or an initial entitlement. Denote by x and y the total expenditures by parties A and B, respectively, on influencing the outcome. The parties can potentially divide their efforts across the two periods, thus denote by (x_1, x_2) the expenditures of party A and similarly (y_1, y_2) for party B, with $x = x_1 + x_2$ and $y = y_1 + y_2$. The effect of the parties' rent-seeking actions on the resulting allocations is captured in the following way.[3] It is assumed that at period 1 the allocation W_1 depends on the initial allocation W_0 and the effort levels x_1 and y_1, according to the functional relation:

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[2] In a previous article, I explored the effect of durability doctrines in one area–the erosion of entitlements in the presence of ongoing infringements (Ben-Shahar, 1999). Here, I develop a model that will generalize some of the insights discussed in previous work and to examine the implications of the model in a far broader setting than previously explored.

[3] The rent-seeking model below differs substantially from the standard rent-seeking model utilized in much of the economic literature. The standard model depicts a symmetric contest in which expenditures affect the probability of winning in a continuous manner. While that model would allow for an analysis of durability and relate it to a more general rent-seeking framework, it will be less applicable to the legal scenarios studied here.

$$W_1 = \begin{cases} W_0 & \text{if } x_1 \geq a_1 \\ W_0 - by_1 & \text{if } x_1 < a_1 \end{cases}$$

That is, party A can, by spending sufficiently (no less than some threshold a_1), guarantee a favorable outcome and prevent party B from extracting any value relative to the initial allocation. This is a common feature in many legal contests studied in this paper, like trials, in which there is an underlying "meritorious" party which the law seeks to identify, and where this party's opportunity to affect the outcome cannot be matched by the other party. But when party A does not spend enough (less than a_1), party B can extract some of the initial entitlement W_0, depending on the level of effort that B sets (with the parameter $b>1$ measuring the "productivity" of B's rent-seeking effort.[4]) Different assumptions regarding the determinants of the threshold a_1 will be analyzed below.[5]

Following the period-1 allocation, a second round of the allocation contest occurs at period 2. In this round, however, the resulting allocation depends not only on the rent-seeking effort by the parties, but also on the outcome of the period-1 contest. The particular weight attributed to the period-1 outcome in determining the period-2 allocation depends on the *rule of durability*, as will be explained below.

The utility of each party equals the fraction of the entitlement that they secure, less the rent-seeking effort expended, summed over the two periods. Assuming no discounting,[6] party A's utility, denoted by U_A, is:

$$U_A = (W_1 + W_2) - (x_1 + x_2),$$

and party B's utility, U_B, is:

$$U_B = (W_0 - W_1) + (W_0 - W_2) - (y_1 + y_2).$$

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[4] It is assumed here that party B's effort yields linear returns. This assumption is not critical and can be substituted with a more general specification under which the value that B extracts is $V(y)$, with $V' > 0$ and $V'' < 0$.

[5] This model is consistent with several timing specifications, including a sequential-move setting in which either party moves first, or a simultaneous-moves setting. In analyzing the equilibrium behavior, it will be assumed that party B moves first and party A reacts after observing party B's move.

[6] For simplicity, no discounting is assumed. As will be explicitly shown, none of the results below will depend on this restriction.

That is, party B enjoys the value he extracts each period less the cost of rent-seeking. Note that an implicit assumption here is that the parties' preferences do not change over time. This is an important assumption in the model; without it, parties may not have a private preference for durability.[7]

The analysis will examine three types of durability rules applicable to the period-2 allocation:

(i) *Periodic Allocation Regime* ("PER"). Under this regime, the allocation decision is made anew at each period. Specifically, at the beginning of period 2, the period-1 allocation expires and a new allocation is made independently of the previous period-1 allocation, with the same baseline W_0 that applied prior to the period-1 allocation back in place. Thus, the $W_2(.)$ function takes the form:

$$W_2 = \begin{cases} W_0 & \text{if } x_2 \geq a_2 \\ W_0 - by_2 & \text{if } x_2 < a_2 \end{cases}$$

(ii) *Durable Allocation Regime* ("DUR"). Under the Durable Allocation regime, the decision that is made at period 1 cannot be modified at period 2, no matter how much effort the parties exert. That is, the $W_2(.)$ function takes the redundant form:

$$W_2 = W_1, \quad \forall (x_2, y_2).$$

(iii) *Revisable Allocation Regime* ("REV"). Under this regime, the allocation decision of period 1 may be revised at period 2. If the parties exert no effort to affect the period-2 allocation, then it will remain W_1. Thus, unlike the Periodic Allocation regime, the period-1 allocation does not expire, but rather it becomes the baseline for the period-2 allocation. Specifically, the period-2 allocation can be written as a function of the previous allocation W_1 and the change that is due to parties' period-2 efforts:

$$W_2 = \begin{cases} W_1 & \text{if } x_2 \geq a_2 \\ W_1 - by_2 & \text{if } x_2 < a_2 \end{cases}$$

Thus, the period-1 allocation decision is most durable under the Durable Allocation regime and least durable under the Periodic Allocation regime. The

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[7] This assumption can be discarded if W_0 were interpreted not as a fixed value, but as a power to choose the desired allocation. Then, even if party A's preferences changed from period 1 to 2, durability is favorable to him as it secures his ability to choose an adjusted outcome.

Revisable Allocation regime is, with respect to the durability property, an intermediate case: the period-1 outcome can be modified, but it does affect the baseline (and, indirectly, the outcome) at period 2.

To illustrate, consider budgetary allocations made by the government. Discretionary spending programs that receive annual appropriations constitute a Periodic Allocation regime. Spending programs in which the government commits at the outset to long-term funding and which cannot be repealed would constitute a Durable Allocation regime. Other entitlement and tax expenditure programs for which funding is renewed automatically, as long as they remain unchanged, exemplify a Revisable Allocation regime.

2.2. ANALYSIS

The analysis in this section studies equilibrium allocation decisions under the three rules of durability.

2.2.1. Periodic Allocation Regime

Under the Periodic Allocation regime, in each period party A will spend either $x_t = a_t$ or $x_t = 0$, depending on the value of rent-seeking "expropriation" attempted by B in that period. If the value of the expropriation that B is aiming for, by_t, exceeds a_t, party A will prefer to spend a_t and prevent this expropriation. Otherwise, A would rather bear the expropriation than the cost of contesting it. Anticipating this level of tolerance by A, party B will exploit it to the limits and will tune his level of expenditure so as to chisel as much value as possible without invoking a contesting response from A. Therefore, as long as $b>1$,[8] party B will choose a level of expenditure y_t that satisfies $by_t = a_t$. A higher level will trigger a contesting response from A, and B will end up without any expropriation, while bearing the cost of the futile effort; a lower level will still be acquiesced to by A, but would yield B a lower payoff. Under this level of expropriation, party A cannot gain by spending the cost to fight it off (a cost of a_t), and will thus acquiesce.[9] Hence, under this regime, at each period party B will set its rent-seeking effort at the level of $y_t = a_t/b$ and extract a value of a_t from A's initial allocation of W_0, for a resulting allocation of $W_1 = W_2 = W_0 − a_t$. Thus, party A's total utility is

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[8] If $b \leq 1$, party B nets $by_t − y_t \leq 0$, and will prefer to avoid rent-seeking actions.

[9] It is assumed that whenever indifferent between acquiescing to the expropriation (and losing a value equal to a_t) or fighting it off at a cost of a_t, A would acquiesce. Technically, it may be assumed that B's effort is set just below the level described above, so as to break A's indifference. All the results will hold under this interpretation as well.

$$U_A^{PER} = 2W_0 - (a_1 + a_2),$$

and party B's total utility is

$$U_B^{PER} = \frac{b-1}{b}(a_1 + a_2).$$

In equilibrium, A does not expend any effort, but B's expropriation fully reflects the sum of A's periodic costs of securing its entitlement.

2.2.2. Durable Allocation Regime

Under the Durable Allocation regime, $W_2 = W_1$. At period 1, party A will be less tolerant to rent-seeking by party B. Party A expects that any level of rent-seeking which she does not contest at the present period will not only disfavor her in the period-1 allocation decision, but would also carry over to the period-2 allocation. Thus, for any level of party B's rent-seeking at period 1, by_1, if A spends a_1 at period 1 she expects to net over the two periods $2W_0 - a_1$. If, instead, A does not spend a_1 at period 1 and allows the expropriation to occur uncontested (spends 0), she expects to net $2(W_0 - by_1)$. To assure that A does not contest the expropriation, B should cautiously set his period-1 rent-seeking effort, y_1, such that A will be indifferent between (or slightly less well-off by) spending versus not spending a_1. This implies:

$$2W_0 - a_1 = 2(W_0 - by_1),$$

which yields $by_1 = (\frac{1}{2})a_1$. Thus, the period-1 allocation decision becomes $W_1 = W_0 - (\frac{1}{2})a_1$. Intuitively, under the Durable Allocation regime, party B sets a period-1 level of rent-seeking that is lower than under the Periodic allocation regime because he expects that party A will exhibit less tolerance. Party A has more to lose by not contesting any period-1 level of rent-seeking, and thus has a more credible threat to contest B. Anticipating A's behavior, B–who still wishes to stretch A's tolerance to the limit and yet avoid a contest–will set a lower level of expropriation. In the two-period model, B's optimal strategy is to cut his level of expropriation by half, compared to the Periodic Allocation regime.[10] Thus, $W_2 = W_1 = W_0 - (\frac{1}{2})a_1$. Party A's total utility across the two periods under this regime is

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[10] Generally, in an n-period model without discounting, B would cut its first period expropriation by a factor of n, its second period expropriation by a factor of n-1, etc.

$$U_A^{DUR} = 2(W_0 - (\tfrac{1}{2})a_1) = 2W_0 - a_1.$$

Party B's utility is

$$U_B^{DUR} = \frac{2b - 1}{2b} \, a_1 \, .$$

Once again, in equilibrium A does not expend any effort to contest B's measured level of rent-seeking.

2.2.3. Revisable Allocation Regime

Under the Revisable Allocation regime, begin by examining the period-2 contest. At this stage, any level of rent-seeking effort by either party will be set against the new allocation, W_1, that resulted from the period-1 interaction. Party B will choose a level of rent-seeking effort that would make party A indifferent between contesting and not contesting it. If A contests the additional expropriation, she can at best secure a value of W_1 (at a cost of a_2). If A does not contest the additional expropriation, she will retain a value of $W_1 - by_2$. Thus, party B will set y_2 such that:

$$W_1 - a_2 = W_1 - by_2,$$

or, $y_2 = a_2/b$. Thus, for any period-1 outcome W_1, the period-2 allocation will be $W_2 = W_1 - a_2$.

  Moving back to period 1, at this stage party A will be less tolerant to rent-seeking by party B. Party A expects that any level of rent-seeking to which she acquiesces at the present period will set the baseline for the period-2 contest and, while revisable, will cost her twice. Thus, for any level of party B's rent-seeking at period 1, by_1, if A spends a_1 at period 1 she guarantees that $W_1 = W_0$ and her overall payoff would be $W_0 - a_1 + (W_0 - a_2)$. If, instead, A does not spend a_1 at period 1 and allows the expropriation to occur uncontested (spends 0), the period-1 outcome will be $W_1 = W_0 - by_1$ and her overall payoff would be $(W_0 - by_1) + (W_0 - by_1 - a_2)$. To assure that A does not contest the expropriation, B should set his period-1 rent-seeking effort, y_1, such that A will be indifferent between (or slightly less well-off by) spending versus not spending a_1. This implies:

$$(W_0 - a_1) + (W_0 - a_2) = (W_0 - by_1) + (W_0 - by_1 - a_2),$$

which yields $by_1 = (\tfrac{1}{2})a_1$. Thus, the period-1 allocation decision is $W_1 = W_0 - (\tfrac{1}{2})a_1$, and the period-2 allocation decision is $W_2 = W_1 - a_2 = W_0 - (\tfrac{1}{2})a_1 - a_2$.

Party A's total utility across the two periods under this regime is

$$U_A^{REV} = (W_0 - (\tfrac{1}{2})a_1) + (W_1 - a_2) = 2W_0 - (a_1 + a_2).$$

Party B's total utility equals

$$U_B^{REV} = \frac{2b-1}{2b}a_1 + \frac{b-1}{b}a_2$$

2.2.4. *Comparison of Regimes*

The following table summarizes the comparison between the three durability rules:

Regime	Period-1 Allocation	Period-2 Allocation	Party A's Utility	Party B's Utility
Periodic	$W_0 - a_1$	$W_0 - a_2$	$2W_0 - (a_1 + a_2)$	$\frac{b-1}{b}(a_1 + a_2)$
Durable	$W_0 - (\tfrac{1}{2})a_1$	$W_0 - (\tfrac{1}{2})a_1$	$2W_0 - a_1$	$\frac{2b-1}{2b}a_1$
Revisable	$W_0 - (\tfrac{1}{2})a_1$	$W_0 - (\tfrac{1}{2})a_1 - a_2$	$2W_0 - (a_1 + a_2)$	$\frac{2b-1}{2b}a_1 + \frac{b-1}{b}a_2$

Table 1

Several general results emerge from this comparison:

PROPOSITION 1.

> (a) The entitlement holder's (party A) utility is identical across the Periodic and Revisable Allocation regimes; it is highest under the Durable Allocation regime.

(b) The contesting party's (party B) utility is highest under the Revisable Allocation regime; it is lowest under either the Durable or the Periodic Allocation regimes.

(c) The deadweight loss due to rent-seeking activity is highest under the Periodic Allocation regime; it is lowest under the Durable Allocation regime.

Discussion. (i) *Neutrality between Periodic and Revisable Allocation regimes.* For party A, the Revisable and Periodic Allocation regimes yield identical overall value, $2W_0 - 2a_1$, whereas the Durable Allocation regime provides a higher payoff, $2W_0 - a_1$. In comparing the allocation under the Revisable and the Periodic Allocation regimes, note that while the profile of allocations over time varies across regimes--$(W_0 - a_1, W_0 - a_2)$ under the Periodic Allocation regime and $(W_0 - (\frac{1}{2})a_1, W_0 - (\frac{1}{2})a_1 - a_2)$ under the Revisable Allocation regime--the overall utility of party A is the same. Under the Revisable Allocation regime, party A gets more at period 1 and less at period 2, but these differences wash out.

   (ii) *Intuition.* Under all three regimes, party A, who has an initial entitlement of W_0, is vulnerable to rent-seeking precisely in the magnitude of her cost of defense. Party B will chisel only so much value as to make party A unwilling to spend the cost of contesting the expropriation. Under the Periodic and Revisable regimes, there are two periods in which rent-seeking can occur, thus it costs party A the sum of $a_1 + a_2$ to defend and that value ends up equaling the exact amount of expropriation she suffers. Under the Durable regime there is only one period in which rent-seeking can occur, thus it costs party A only a_1 to defend, which again sets the limit on the amount that can be expropriated from her. Stated differently, the reason that the Durable Allocation regime yields higher utility for party A is analogous to the reason why some consumers prefer durable over non-durable batteries: the durable batteries—even if more expensive—save the consumers the transaction cost of having to change batteries frequently.[11] In general, the regimes might give rise to different values for party A only to the extent that they differ with respect to the defense costs that she is required to expend in order to continuously protect the initial allocation. If, say, under the Durable Allocation regime it were more costly to secure the initial allocation at period 1, then the advantage

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[11] Alternatively, the Durable regime is preferable for the same reason that durable batteries which have a longer life but do not cost more would be preferable.

of this regime from A's point of view diminishes, and–if that one-time cost exceeded $(a_1 + a_2)$–might become a disadvantage. This possibility will be examined below.

(iii) *Why the Revisable regime is favorable to the contesting party.* Party B's payoff is highest under the Revisable Allocation regime. It is greater than under the Periodic Allocation regime because, while the value expropriated from A is the same under both regimes $(a_1 + a_2)$, the period-1 cost that B needs to invest in order to secure this expropriation is smaller. Under the Revisable Allocation regime, B invests at period 1 half the cost that she invests under the Periodic Allocation regime, yet, by enjoying its effect for two periods, gets the same return. [12] Party B's payoff under the Revisable Allocation regime is also higher in comparison with the Durable Allocation regime because, while the two regimes are identical with respect to the period-1 conduct, the Revisable Allocation regime provides party B with an additional opportunity to rent-seek profitably at period 2, an opportunity that does not exist under the Durable Allocation regime.[13] Lastly, the comparison between the Durable and Periodic Allocation regimes is ambiguous. The Periodic Allocation regime provides B with more frequent opportunities to rent-seek profitably, but the Durable Allocation regime provides a greater return for the period-1 rent-seeking effort.[14]

(iv) *Deadweight Loss.* To the extent that the rent-seeking actions taken by the parties have only an allocative effect (and no ex ante productive effect), it is worth examining how the regimes rank with respect to the overall cost invested in rent-seeking. Because party A does not invest any defense costs, we can focus on party B's investment. The smallest investment in rent-seeking occurs under the Durable Allocation regime. Under this regime, there is only one instance of rent-seeking contest, whereas under the two other regimes, there are repeated instances. Also, due to the enhanced credibility of party A's

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[12] $U_B^{REV} - U_B^{PER} = a_1/(2b)$, which exactly equals the saving in cost of effort at period 1.

[13] $U_B^{REV} - U_B^{DUR} = \dfrac{b-1}{b} a_2$, which exactly equals the net incremental gain to party B from the period-2 expropriation.

[14] $U_B^{PER} - U_B^{DUR} = (-\dfrac{1}{2b}) a_1 + \dfrac{b-1}{b} a_2$, which could be either positive or negative. If b is sufficiently large, $U_B^{PER} > U_B^{DUR}$. In this case, the optimal levels of y_1 and y_2 will be relatively low, and thus the saving of rent-seeking costs involved with having to invest these effort only once under the Durable Allocation regime dwarfs in comparison with the gain involved in having a double opportunity to chisel under the Periodic Allocation regime.

threat to defend, the amount invested by party B in period 1 is smaller. The largest investment in rent-seeking occurs under the Periodic Allocation regime. Under this regime, there is a repeated instance of the rent-seeking contest, and, unlike both the Durable and Revisable regimes, there is no inhibiting effect in period 1.

(v) *Discounting*. The analysis above assumed zero-discounting. Adding positive discounting into the analysis will not change the qualitative results. In particular, the equivalence, from the entitlement holder's point of view, between the Periodic and the Revisable regime remains (even though under the Revisable regime the period-1 payoff is higher and the period-2 payoff is lower). With discounting, the durability accorded to the period-1 outcome under the Revisable regime is less valuable to the entitlement holder. Thus, her incentives to prevent chiseling will diminish. Discounting reduces the entitlement holder's incentive to secure a high period-1 allocation; and, at the same time, it reduces the cost to the entitlement holder of the period-2 expropriation. These two effects balance out. Overall, under either the Revisable regime or the Periodic regime, for every discount factor δ, the value that party B can expropriate is $(a_1 + \delta a_2)$—the discounted value of the entitlement holder's defense costs.[15]

2.3. ENDOGENOUS DEFENSE COSTS

The analysis above was based on the assumption that party A can secure an undiminished entitlement by spending an exogenous sum a (which could potentially vary across periods). One of the main results obtained was that party A is better off under the Durable regime, having to defend only once at a cost of a_1, rather than twice over two periods at a cost of $a_1 + a_2$ under the less durable regimes. It is possible, however, that the magnitude of the defense cost would vary across regimes. In particular, under the Durable Allocation regime the period-1 cost for the entitlement holder to defend her entitlement might be higher than under, say, the Periodic regime. Intuitively, under a Durable regime the period-1 contest involves higher stakes, leading party B to contest the entitlement more vigorously, thereby making it more difficult for the entitlement holder to "win." This section tries to provide an underpinning for this intuition.

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[15] Under the durable regime, the value that party B can expropriate remains a_1, independent of the discounting factor δ. The general principle, that the overall expropriation equals the overall defense costs applies, and since the defense costs under the Durable regime are (the non-discounted, period-1) a_1, this is the value of the expropriation.

2.3.1. Defense Cost Depends on the Opponent's Attempted Expropriation

One way to model an endogenous defense cost is to assume that the more party B invests in rent-seeking (higher y), the costlier it becomes for party A to defend her entitlement. For example, if party A is interested in a government appropriation and party B is an opposing interest group, it is likely that the more party B spends on lobbying against A's favorable allocation, the more costly it will be for party A to secure the appropriation. Formally, it will be assumed that party B's investment y has a dual effect. First, as before, it expropriates value from party A. Second, it increases party A's defense cost, which could now be denoted as a function of y, namely: $a = a(y)$, with $a'(y) > 0$ and $a''(y) < 0$.[16] For simplicity (and without loss of generality), it will be assumed that the effect of y on party A's defense cost is the same across the two periods: $a_1(y) = a_2(y) \equiv a(y)$.[17]

Under the Periodic Allocation regime, at each period party B will set the level of rent-seeking expenditure according to the following condition:

$$by = a(y).$$

When this equality is satisfied, party B is assured that party A is indifferent between acquiescing to the expropriation (a loss of by) and contesting it (a cost of $a(y)$). Denote the equilibrium level of rent-seeking under the Periodic regime as y^{PER}. The overall allocation resulting from these levels of rent-seeking is thus $2W_0 - 2a(y^{PER})$.

Under the Durable Allocation regime, at period 1 party B will set the level of rent-seeking expenditure according to the following condition:

$$2by = a(y).$$

When this equality is satisfied, party B is assured that party A is indifferent between acquiescing to the expropriation (a loss of by, doubled over the two periods) and contesting it (a one-time cost of $a(y)$). Denote equilibrium level of

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[16] The assumption of a negative second derivative is plausible in this context, although lacking generality. On the characteristics of rent-seeking contests with diminishing, increasing, or constant returns to scale, see Tullock (1980).

[17] Here, again, the model varies from the standard rent-seeking model, which assumes continuity of the outcome with respect to symmetric rent-seeking efforts. Under the standard model, the more one party invests, the more favorable to him the outcome. With increased durability, the stakes rise and parties invest more. Depending on the relative productivities of investment, the outcome of the contest may or may not depend on its durability.

rent-seeking under the Durable regime as y^{DUR}. The overall allocation resulting from this level of rent-seeking is $2W_0 - a(y^{DUR})$.

Under the Revisable Allocation regime, at period 1 party B will set the level of rent-seeking expenditure according to a similar condition as under the Durable regime (y^{DUR}), and at period 2 party B will set the level of rent-seeking expenditure according to a similar condition as under the Periodic regime (y^{PER}). Thus, the overall allocation resulting from these levels of rent-seeking is $2W_0 - a(y^{DUR}) - a(y^{PER})$. To compare the three regimes, the following proposition can be stated:

PROPOSITION 2

When defense costs depend on the opponent's expropriation effort, the entitlement holder's (party A) utility is highest under the Durable Allocation regime and lowest under the Periodic Allocation regime.

Proof. See Appendix.

Discussion. (i) *Intuition.* The reason that the Durable regime guarantees the highest payoff to party A is twofold. First, as in Section 2.2 above, party A benefits from the fact that only one instance of rent-seeking, rather than two, can occur. Second, party A's enhanced incentive under the Durable regime to defend her entitlement reduces party B's optimal level of rent-seeking, which in turn reduces party A's cost of defense. This result suggests that, at least within the assumptions of the model, the conjecture that the entitlement holder's defense cost would *rise* under the Durable regime is not valid. To the contrary, the Durable regime becomes even more favorable to the entitlement holder. The reason: while it is true that *if* party B were to spend more at period 1 then party A would have been worse off, party B in fact spends *less*. Party B spends less on rent-seeking at period 1 because he recognizes that party A has, under the Durable regime, a greater incentive to defend the entitlement. Knowing that he faces a more determined opponent, party B spends less on period-1 rent-seeking, which, in turn, endogenously reduces party A's period-1 defense cost. Put differently, the above conjecture fails because it does not recognize that, just as party B would try to increase the defense cost to party A, party A would try to do the opposite. Party A's added incentive to defend under the Durable regime reduces not only the rent-expropriation, but also the cost of defense.

2.3.2. *Defense Cost Depends on Pre-Contest Expenditures*

Another way to capture the added incentive of party B to expropriate value under the Durable regime is to enable party B to directly affect party A's defense costs (rather than indirectly, as a byproduct of the rent-seeking effort.) Specifically, suppose that each period of the rent-seeking contest is divided into two rounds. In the first round, party B makes an investment that has no direct effect on the entitlement, but merely affects the defense costs of party A. In the second round, once the defense costs have been established, party A and B engage in a rent-seeking contest as described in the previous section, where party B can spend an additional effort to expropriate value. Formally, it can be assumed that at the outset of each period t in which a rent-seeking contest is about to occur, party B chooses some investment expenditure $z_t \geq 0$, having the sole effect of determining the value of a_t, such that $a_t = a_t(z_t)$ (with the standard assumptions that $a_t' > 0$ and $a_t'' < 0$). This pre-contest expenditure can be the filing of discovery motions in a trial contest (increasing the litigation cost to the other party), hiring high-powered lobbyists in a legislative contest (forcing the opposing group to increase its own expenditure), and the like. Following this preliminary expenditure, both parties can expend x and y to affect the resulting allocation W_t.

PROPOSITION 3

> When an opponent can directly spend to increase the entitlement holder's defense costs, the entitlement holder's utility may no longer be highest under the Durable Allocation regime.

Proof. See Appendix.

Discussion. Under the Durable Allocation regime, party B would spend more to make party A's defense costly. Party A would thus face a higher defense cost at period 1 and would be subjected to a greater rent-expropriation in that period, relative to the Periodic regime. Notice, however, that the reason that party B spends more under the Durable regime is *not* the "increased stakes." Under both the Durable and the Periodic regimes, party B will succeed in extracting the full a_1, and there is no inherent reason why party B would be more driven to push the value of a_1 up under the Durable regime. Nevertheless, the reason that party B spends more to push the value of a_1 up under the Durable regime is that, once a_1 is set, under the Durable regime party B can extract a_1 at a lower cost (having to spend only half the rent-seeking cost at period 1, and enjoying it "freely" at period 2; see Proposition 1(b).) Thus, under the Durable regime,

an investment in raising a_1 yields a higher subsequent return, and therefore the level of investment—and the corresponding value of a_1— would be higher.

2.4. NON-DEFENSIBLE ENTITLEMENTS

A critical and quite restrictive assumption underlying the framework studied above is that the entitlement holder can, by spending an affordable sum of a, preserve her entitlement unscathed. Because party B considered credible party A's threat to contest any rent-seeking action that costs A more than *a*, party B tuned his level of rent-seeking accordingly, and the parameter "a" in fact determined the extent of party B's equilibrium level of rent-seeking. It might often be the case, however, that an entitlement holder cannot perfectly defend her entitlement from expropriation, or can do so only if she spends an exceedingly high sum. Relative to the stakes involved and to party B's optimal rent-seeking action, *a* might be prohibitively high. In this case, either party A does not contest B's rent-seeking action and allows B to extract value, or party A does spend costs to defend her entitlement, but these costs can only reduce, not eliminate, the expropriation.

To model this situation, let us assume that party B's cumulative rent-seeking effort, $y_1 + y_2$, cannot exceed some exogenous level *y*, and that 2by < a. There are two reasons why party B's expenditures might be capped in this way. First, liquidity and budget constraints or regulatory limitations might prohibit party B from spending more than *y*, which—in the absence of such constraints—he would. Second, in choosing his level of effort, party B might face an optimization problem which would lead him to *choose* not to spend more than *y*. For example, if the marginal returns to rent-seeking effort are diminishing, B would not want to spend beyond the point at which the marginal return is less than the marginal cost of effort.[18] That is, no matter how party B divides his rent-seeking expenditure across periods, it would never be in party A's interest to challenge B and to spend defense costs.[19] We will also explore the possibility that *a* is prohibitively high only in some, but not all, periods.

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[18] To provide an underpinning for the assumption that party B is constrained by an exogenous level of spending, consider the specification in note 4, in which the return to rent-seeking is captured by the concave function V(y). Party B chooses *y* to maximize V(y) – y subject to the constraint that V(y) is not too high as to induce party A to defend. Under the Periodic regime, this constraint is V(y) ≤ a, and under the Durable or Revisable regimes the constraint is V(y) ≤ (½)a. If *a* is high enough, the same interior solution arises under all regimes, in which case the "cap" on party B's spending is independent of the durability rule and can be analyzed as exogenous.

19 This characterization is restrictive in two ways. First, by constraining B's expenditures exogenously, it does not take into account the way that the different durability rules might affect

Periodic Allocation Regime. Under this regime, party B could potentially divide his expenditure between the two periods. For any division (y_1, y_2) he chooses, the resulting allocations will be:

$$W_1 = W_0 - by_1$$

$$W_2 = W_0 - by_2$$

Thus, irrespective of the division of expenditures across periods, party A's total utility from the two-period allocation is $U_A^{PER} = 2W_0 - by$, and party B's utility is $U_B^{PER} = (b - 1)y$.

Durable Allocation Regime. Under this regime, $W_2 = W_1$ and is not affected by an investment of y_2. Thus, party B will never find it desirable to spend any level of effort at period 2. At period 1, he expects to have no future opportunity to affect the outcome, and thus expends the entire effort y on influencing the present, period-1 outcome. This yields:

$$W_1 = W_2 = W_0 - by.$$

Party A's total utility from the two-period allocation is $U_A^{DUR} = 2W_0 - 2by$, and party B's utility is $U_B^{DUR} = (2b - 1)y$.

Revisable Allocation regime. Under this regime, party B may again divide his expenditure between the two periods. For any division (y_1, y_2), the resulting allocations will be:

$$W_1 = W_0 - by_1$$

$$W_2 = W_1 - by_2 = W_0 - by.$$

Notice that because rent-seeking effort is cumulative under this regime (namely, the period-2 allocation depends both on period-1 and period-2 effort) the period-2 allocation outcome is independent of the inter-temporal division. For any division of effort (y_1, y_2), party B's utility is

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the total level of B's spending. This restriction will be relaxed below. Second, it is assumed that in addition to being unable to fend off the expropriation in its entirety, party A is also unable to reduce its level by investing less than *a*. It turns out that this restriction does not diminish the generality of the results. Qualitatively similar results would arise if both A and B were able to spend up to exogenously limited sums and if the allocation outcome were a continuous function of both parties' expenditures.

$$U_B{}^{REV} = (2b - 1)y_1 + (b - 1)y_2.$$

Substituting $y - y_1$ for y_2 yields:

$$U_B{}^{REV} = (b - 1)y + by_1.$$

Choosing y_1 to maximize this expression yields $y_1 = y$. That is, party B will strictly prefer to spend his entire rent-seeking effort upfront, at period 1. Every dollar that is shifted from period 2 to period 1 generates a net marginal increase in utility of b, because it will affect both the period-1 allocation (directly) and the period-2 allocation (indirectly). If, instead, this dollar spending were postponed until period 2, it would have affected only the period-2 allocation. It is therefore never optimal to conserve some of the rent-seeking effort for period 2. Hence, party A's utility under the Revisable Allocation regime equals $U_A{}^{REV} = 2W_0 - 2by$ and party B's utility equals $U_B{}^{REV} = (2b-1)y$.

The following table summarizes the comparison between the three durability rules:

Regime	Period-1 Allocation	Period-2 Allocation	Party A's utility	Party B's utility
Periodic	$W_0 - by_1$	$W_0 - by_2$	$2W_0 - by$	$(b-1)y$
Durable	$W_0 - by$	$W_0 - by$	$2W_0 - 2by$	$(2b-1)y$
Revisable	$W_0 - by$	$W_0 - by$	$2W_0 - 2by$	$(2b-1)y$

Table 2

The following results emerge from this comparison:

PROPOSITION 4

When the entitlement holder (party A) cannot defend against rent-seeking, but the rent-seeker (party B) cannot spend more than an exogenous sum, the entitlement holder's utility is highest under the Periodic Allocation regime, and it is identical under the Durable and the Revisable Allocation regimes. Conversely, the rent-seeker's utility is

lowest under the Periodic Allocation regime, and it is identical under the Durable and the Revisable Allocation regimes.

Remarks. (i) *Durable versus Revisable Allocations.* Under both the Durable and the Revisable Allocation regimes, the entire rent-seeking effort is spent at period 1. Under the Durable Allocation regime, this is so because there is no legal opportunity for rent-seeking at period 2. Under the Revisable Allocation regime, the opportunity exists, but the entire effort is spent upfront because it is never optimal to delay any expenditure until period 2, given that the same effect on the period-2 allocation can be achieved through a period-1 investment, which then also affects the period-1 outcome. Thus, the choice between the Durable and Revisable Allocation regimes is irrelevant. The same pattern of rent-seeking and the same distributive outcome emerges under both regimes. In equilibrium, the period-1 allocation under the Revisable Allocation regime is *not* modified at period 2, and it is effectively as durable as under the Durable Allocation regime.

(ii) *Periodic Allocation Regime.* Under the Periodic regime the effort is split between the two periods. Due to the assumption that the marginal return to effort is constant and fixed across periods, any division of effort yields the same outcome under the Periodic Allocation regime. The reason that party A is better off under the Periodic regime is that the Durable and the Revisable regimes magnify the effect of rent-seeking. Any period-1 expropriation by party B under these two regimes lingers for two periods, whereas under the Periodic regime it has only a short-run, one-period effect. Stated differently, the reason why party A is better off under the Periodic Allocation regime is analogous to the reason why a consumer would prefer to lease a new car for short periods rather than for long periods. If, say, the cost of two (periodic) one-year leases is roughly the same as the cost of one (durable or renewable) two-year lease, the consumer gets a chance to replace the vehicle twice as often, thereby reducing by half the average age of the vehicle she is driving and reducing the inconvenience of wear and tear.

2.5. RETURNS TO EFFORT VARY ACROSS PERIODS

How would the rent-seeking actions of the parties and their payoffs be affected by the fact that returns to rent-seeking effort vary across periods? The analysis in Section B above accounted for the possibility that party A's defense costs might vary across periods ($a_1 \neq a_2$), yet it did not capture the substitution effect that might occur in allocating rent-seeking effort across periods. There, we saw that party B will fully exploit A's costs of defense at each period. To capture the incentive of parties to shift effort to periods in which returns to effort are

high, consider again a setting in which $a_1 \neq a_2$, but assume now in addition that in one of these periods the defense costs are prohibitively high. That is, party A is assumed to be able to effectively defend her entitlement only during one of the two periods. In the other period, she is defenseless. This, we can expect, would lead party B to shift a greater portion of his rent-seeking effort to the period in which A is defenseless. However, this substitution effect might be constrained by the durability rules, as the analysis below explores.

Assume, as before, that party B's cumulative rent-seeking effort, $y_1 + y_2$, cannot exceed the exogenous level y. Assume, in addition, that $a_1 < a_2$. Specifically, consider a case in which $a_1 < 2by < a_2$. That is, party A might be able to challenge B's rent-seeking at period 1, but would never find it feasible to challenge party B's rent-seeking at period 2.[20]

Periodic Allocation Regime. Under this regime, party B would divert the bulk of his expenditure to period 2, exploiting A's defenselessness. At period 1, party B will measure his action so as not to trigger a defense response from party A, and will thus set $y_1 \leq a_1$. At period 2, party B will spend its entire remaining effort, $y_2 = y - y_1$. (One possible outcome under this regime is for party B to set $y_1 = 0$ and $y_2 = y$.) The resulting allocations will be:

$$W_1 = W_0 - by_1$$

$$W_2 = W_0 - b(y - y_1)$$

Thus, irrespective of the exact division of rent-seeking across periods, party A's total utility is $U_A^{PER} = 2W_0 - by$, and party B's utility is $U_B^{PER} = (b-1)y$.

Durable Allocation Regime. Under this regime, party B will not divert any effort towards the "high-return" period 2, because at that period the outcome can no longer be revisited. At period 1, then, party B will spend the maximal tolerable effort so as not to trigger a defense by party A. As has been shown above, recognizing that she has more to lose by acquiescing to rent-seeking at period 1, party A will be more eager to defend her entitlement. Thus, although her cost of defense is a_1, party B will not exploit it all and will only set a level of rent-seeking such that $by_1 = (\frac{1}{2})a_1$. Thus, $y_1 = \dfrac{a_1}{2b}$ and $y_2 = 0$. This yields:

$$W_1 = W_2 = W_0 - (\frac{1}{2})a_1.$$

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[20] The opposite case, in which $a_1 > a_2$, is of less interest as it only replicates the result of the $a_1 = a_2$ case. The reason will be explained below.

Party A's utility is $U_A^{DUR} = 2W_0 - a_1$, and party B's utility is $U_B^{DUR} = (2b - 1)\dfrac{a_1}{2b}$.

Revisable Allocation Regime. Under this regime, party B will on the one hand want to spend more effort at period 1 to enjoy its longer-term effect, but on the other hand will want to shift effort to period 2, in which party A is defenseless. In equilibrium, party B will spend only so much at period 1 so as not to trigger defensive action by A. As under the Durable regime, the period-1 rent-seeking action will be further restrained by party A's enhanced eagerness to defend, thus $by_1 = (\frac{1}{2})a_1$. At period 2, party B will spend the remaining effort in its entirety, that is, $y_2 = y - y_1 = y - \dfrac{a_1}{2b}$. The resulting allocations will be:

$$W_1 = W_0 - (\tfrac{1}{2})a_1$$

$$W_2 = W_1 - b(y - \tfrac{a_1}{2b}) = W_0 - by.$$

Again, because rent-seeking effort is cumulative under this regime (namely, the period-2 allocation depends both on period-1 and period-2 effort), the period-2 allocation outcome is independent of the inter-temporal division. Hence, party A's utility under the Revisable Allocation regime equals $U_A^{REV} = 2W_0 - by - (\frac{1}{2})a_1$ and party B's utility equals $U_B^{REV} = (b-1)y + (\frac{1}{2})a_1$.

The following table summarizes the comparison between the three durability rules:

Regime	Period-1 Allocation	Period-2 Allocation	Party A's Utility	Party B's Utility
Periodic	$W_0 - ba_1$	$W_0 - b(y - a_1)$	$2W_0 - by$	$(b-1)y$
Durable	$W_0 - (\frac{1}{2})a_1$	$W_0 - (\frac{1}{2})a_1$	$2W_0 - a_1$	$(2b-1)\dfrac{a_1}{2b}$
Revisable	$W_0 - (\frac{1}{2})a_1$	$W_0 - by$	$2W_0 - by - (\frac{1}{2})a_1$	$(b-1)y + (\frac{1}{2})a_1.$

Table 3

PROPOSITION 5

> Suppose the entitlement holder (party A) can only defend against rent-seeking at period 1 and the rent-seeker (party B) cannot spend overall more than an exogenous sum. Then the entitlement holder's utility is lowest under the Revisable Allocation regime. It is highest under the Periodic Allocation regime if and only if $a_1 > by$. Conversely, the rent-seeker's utility is highest under the Revisable Allocation regime. It is lowest under the Periodic Allocation regime if $a_1 > by$.

Remarks. (i) *Why is the entitlement holder worse off under the Revisable Allocation regime?* The reason that under the Revisable Allocation regime the rent-seeker does better and the entitlement holder does worse, relative to the Periodic Allocation regime, is due solely to the fact that under the Revisable regime it takes a smaller effort at period 1 to achieve the same constrained expropriation value, thus freeing more rent-seeking effort towards the period 2 contest. (This is the same effect that underlay Proposition 4.) Relative to the Durable regime, the entitlement holder is worse off under the Revisable regime due to the opportunity that party B has under the Revisable regime to conduct additional, period-2 rent-seeking. (This is the same effect that underlay Proposition 1.)

(ii) *Periodic v. Durable Allocation Regime.* Neither the Periodic nor the Durable Allocation regime is unambiguously preferable to the entitlement holder. Under the Periodic regime, the entitlement holder suffers a combined expropriation of *by*, whereas under the Durable regime she suffers an expropriation valued at a_1. It is only when a_1 is sufficiently low ($a_1 < by$) that the Durable regime will yield a higher payoff.

3. APPLICATIONS

3.1. LEGAL TRANSITIONS: THE DURABILITY OF RULES

An important type of legal durability involves the durability of *rules*. Legislated rules may be more or less durable depending on several factors, including the stipulated date of their expiration as determined in the original enactment and the ease with which the legislator or the regulator can change the rules to adopt new policies. One critical factor affecting the durability of rules, which received considerable attention in the legal literature, is the requirement to compensate parties who stand to lose from the transition. If the law can be changed retroactively, or prospectively but without compensating the losers, it is less durable. If, instead, transition relief is required, the original law—and the

entitlements it allocates—are more durable. Transition relief increases durability because the entitlement's duration is extended beyond the time of its formal repeal, as it continues to provide a right for monetary payoffs.

There are different ways to explain the dynamics of legal transitions and how they come about. One prominent explanation focuses on the political economy of legislation, suggesting that rent-seeking by interest groups is the force that affects legal transitions. According to this account, interested parties expend political capital and other forms of influence to acquire favorable, or reject unfavorable, legal rules. Understanding the incentives of interest groups is thus crucial to explaining legal transitions. How are interest groups affected by the durability dimension of legal rules? Surely, if a given rule is favorable to an interest group, the beneficiaries would prefer the rule to be durable, guaranteeing that, even if the rule is changed, the benefits would continue to accrue in the form of transition relief. However, applying the framework of this paper suggests that the added durability does not necessarily benefit the favored group. When the legal transition norm requires relief to affected parties, and thereby accords greater durability to the favorable rule, *the ex ante effect is to make this rule more difficult to acquire*. The price, in terms of rent-seeking effort and political capital, that would be required to secure the rule is greater, both because rule-makers realize that they will not have additional opportunities to extract value in the incidence of reshaping the rule, and because the stakes for opposing interest groups become greater, inducing them to pose greater opposition to the rule's initial enactment. What, then, is the overall effect of transition relief and greater durability on the value obtained by the benefiting group?

The framework developed above is useful in identifying the two effects of increased durability. The availability of transition relief is equivalent to the model's Durable Allocation regime, while norms allowing uncompensated transition are equivalent to either a Revisable Allocation regime or a Periodic Allocation regime (the latter only if the original enactment expires irrespective of post-enactment lobbying.) Generally, greater durability shifts rent-seeking effort to the pre-allocation stage (the period-1 allocation), and away from the post-allocation stage (period 2). An implication of Proposition 1 is that the main factor that accounts for the difference between the net value enjoyed by the entitlement holders under the Durable versus the other regimes is the entitlement holder's cost of securing the favorable allocation. Specifically, it was shown that the overall value to the benefiting group equals the initial allocation (representing, say, a historical entitlement or a political bias of the legislature) less the cost of rent-seeking, and that the cost of rent-seeking is the same under the Revisable and the Periodic Allocation regimes. The advantage

of the Durable Allocation regime is the saving of lobbying costs at the post-enactment stage, but the flip side is the potentially increased lobbying cost at the pre-enactment stage. Proposition 3 suggests that the Durable regime, by making the period-1 contest more ferocious, might not be favorable to the beneficiary group.

In the context of legal transitions, several authors have already applied fragments of this framework to study the desirability of transition relief norms. The fact that transition relief affects the incentives of interested parties to lobby and "purchase" legal rules is well recognized. Ever since Louis Kaplow's (1986) seminal work on legal transitions, many writers have noticed the "period-2 effect," that is, that compensation of losers would reduce entitlement holders' incentive to oppose changes.[21] Some writers have also noticed the "period-1 effect," that is, that compensation of losers would increase the interested parties' incentives to expend pre-enactment effort towards securing a favorable enactment.[22] More broadly, it has been recognized that increasing the durability of legislation makes it more costly to secure, in terms of lobbying cost and the "price" demanded by legislators.[23] Writers have also speculated about the balance of these two effects. Most notably, Shaviro (2000) has suggested that the two effects generated by increased durability might offset each other (Ramseyer and Nakazato, 1989:1167).[24]

While the proposed framework cannot resolve unambiguously the question regarding the balance of the two effects, it highlights some factors that affect this comparison. First, Proposition 1 suggests that adopting a durable policy (full transition relief) might not necessarily affect the division of rent-seeking effort across time, since parties benefit from concentrating every bit of effort upfront even under the alternative Revisable regime. It is only in situations in

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[21] Levmore (1993:289) observes that in the presence of transition relief "[i]dentifiable losers will not need to waste resources lobbying for protection;" while Stark (1996:179) notes that in the absence of relief, investors would "[f]ight vigorously any congressional effort to repeal any of the tax benefits available to them."

[22] E.g., Ramseyer and Nakazato (1989:1173) claim that benefiting parties "[b]id more aggressively for the tax-guaranteed projects at the outset"; Levmore (1999:1676) argues that "If nothing is final and the rules of aggressive change apply, then it is possible that interest groups and other investors will not devote resources to influencing decisionmakers because there is no point in acquiring something that can be undone at a later date."

[23] Landes and Posner (1975:877-878) note that if legislation were to be altered unfavorably or repealed after a few months or years, the "price" Congressmen could demand would be lower.

[24] See Shaviro (2000), "An effective guarantee of transition relief would therefore yield an ambiguous tradeoff[:] more enactment period lobbying in exchange for less post-enactment lobbying." See also Fishel and Sykes (1999:379), "different policies might produce changes in the timing of these expenditures, but the total amount in present value terms should remain constant."

which the upfront enactment is periodic and known to expire within a given period that parties will distribute effort over time. Thus, the assertion that under a Revisable regime interest groups will be reluctant to lobby for rules at the outset is not confirmed by the model. Even when parties expect a future opportunity to revisit the policy (say, after an election), they would rationally choose to forgo the expenditure at that future period and concentrate resources to the initial enactment stage. This does not mean, though, that when transition is easy and the legal rule is expected to be short-lived (a Periodic or a Revisable regime) that parties will abstain from devoting rent-seeking resources.[25] The analysis shows that interested parties will devote as much overall effort, yet distributed more uniformly over time. Furthermore, as the analysis of Section 2.5 demonstrates, the tendency to concentrate resources at the pre-enactment stage would weaken if the parties expected future rent-seeking effort to be more productive (say, due to an anticipated favorable shift in political power). In such a case, under a full transition relief norm, the rent-seeking effort would still be concentrated at the pre-enactment stage, but under a no-transition relief norm more rent-seeking effort would be shifted to the post-enactment stage in which it is more effective. In contrast to a common intuition, Proposition 2 demonstrates that it might even be the case that–due to diminishing marginal returns to effort–more rent-seeking effort will be expended the less durable the regime.

Lastly, Proposition 1 implies that as long as it takes the same amount of political capital to either influence decision makers to enact a favorable entitlement or to influence them not to revoke the entitlement, a norm of full-relief makes the benefiting party better off. Under such a norm, the rent-seeking effort must be spent only once, whereas, in the absence of the norm, effort must be spent repeatedly.

In sum, the framework proposed in this paper organizes a method to examine the distributive effects of legal transition norms. By focusing on the way in which durability affects the incentives to rent-seek, it is possible to identify the factors that make each interest group set its optimal strategy, and the likely effect of these refined strategies on the overall allocation.

3.2. THE DURABILITY OF FISCAL POLICY

Related to the legal transition issue is the durability of fiscal allocations by the government. Interest groups often compete not only over favorable legal regimes, but also over direct budgetary allocations and government

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[25] Levmore (1999:1676), argues that under a no-relief norm there is no point in influencing the policy.

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appropriations, as well as procurement projects, monopoly franchises and other government conveyances and contracts. Consider budgetary spending: it is split into three types of programs: annual appropriations that expire unless renewed (Periodic Allocation), spending provisions that remain in effect unless repealed (Revisable Allocation), and, extraordinarily protected budgets that cannot be revised such as Social Security (Durable Allocation). Similarly, government contracts can be more or less durable, depending on whether the government can breach the contract without having to pay the full scope of remedies for breach available in non-government contract law. In some areas in which it operates, the government engages in governmental (as distinguished from proprietary) functions which it cannot contract away, and thus cannot enter binding enforceable contracts (a Revisable regime). In other areas, contracts or conveyances are binding and irrevocable (a Durable regime.)

Would the beneficiaries of government allocations be interested in having these allocations be more durable? The commonsense intuition in the administrative law literature suggests that the answer is 'yes.' It is often argued that entitlement programs are more valuable to interest groups than annual appropriations *because* they are more durable.[26] However, it is also commonly recognized that the process involved in reaching budgetary allocation decisions is a political contest between rent-seeking interest groups. This, in turn, suggests that the more durable types of budgetary allocations, while more desirable ex post, are also politically more difficult to obtain, ex ante.[27]

The analysis in this paper suggests that the choice between revisable and periodic types of allocations makes less of a difference than commonly perceived. If the allocation is more durable, interest groups will concentrate effort upfront. Proposition 1 shows that the greater ex ante cost exactly balances with the greater ex post benefit, and thus the two regimes are distribution-equivalent. This insight was recently articulated in the context of government contracts. It has been correctly claimed that if the government cannot modify a fiscal arrangement such as a monopoly franchise, "it may simply force interest groups to roll the dice today one time for higher stakes rather than to roll the dice repeatedly over a period of years for proportionately smaller stakes on each roll. In that event, everything may 'come out in the wash' and the present value of rent-seeking expenditures in pursuit of a given

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[26] Elizabeth Garrett (1998b:421) observes that "spending through tax code entitlement is often more valuable to interest groups appropriated benefits […] because they usually need not be renewed once they are established and the funding is automatic as long as the law remains unchanged." But she also recognizes that the more durable the entitlements required, the more costly to secure (1998a).

[27] This effect is also well-recognized. See, e.g., Landes and Posner (1975); Macey (1992:674).

arrangement will be the same under either rule" (Fishel and Sykes, 1999:344). It is the cost-structure of rent-seeking, and not the durability of the entitlement per se, that matters for the distribution of fiscal spending. It has also been speculated that under a no-revocation rule, the amount of rent-seeking and the payoff to the interest group will increase, because it can pick the most effective time to apply influence over the government.[29] This argument is confirmed by Proposition 4: when the interest group can more cheaply secure a beneficial allocation at period 1, it will be best off under the Durable Allocation regime. Similarly, Proposition 2 suggests that if the cost for an interest group to defend its appropriation increases with the magnitude of opposition by other groups, it will again enjoy the highest payoff under the Durable Allocation regime, but this time for a different reason: it now has more of an incentive to enter the costly battle.

Another conjecture raised in the political rent-seeking literature suggests that increasing the durability of a legislative or regulatory deal would increase the overall spending of the interest groups in securing such deals, thus benefiting the legislator (Landes and Posner, 1975:879).[30] This conjecture is not confirmed by the analysis here. Party B, who represents the interest group that is trying to expropriate value, would find it more difficult to achieve such expropriation if the period-1 allocation lasts more than one period. Namely, the shift from a Periodic regime to a Revisable regime—effectuated by making a legislative deal more difficult to repeal—does not increase the value that party B can extract, and thus would not increase the premium paid to the legislator. Put differently, as long as the amount that the legislature has to allocate is invariant across durability regimes, the shift along a continuum from a Periodic to a Revisable regime, or from a frequently revisable to a less-frequently revisable regime, does not change the overall allocation.[31]

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[28] Daniel R. Fishel and Alan O. Sykes, *Government Liability for Breach of Contract*, 1 Amer. L. Econ. Rev. 313, 344 (1999).

[29] Fishel and Sykes (1999:343): "Imagine an interest group knows that it has the votes today in the legislature to secure a monopoly franchise […]. The ability to obtain a benefit with certainty today and in perpetuity is worth more than the opportunity to obtain the same benefit today along with a chance to retain in perpetuity. And because the benefit is more valuable, interest groups should rationally spend more (in present value) to secure it."

[30] But Macey (1998:178) notes that "More durable statutes and regulations will be worth more to politicians than less durable statutes and regulations because interest groups are willing to pay for durability."

[31] Elhauge (1991) recognizes that the benefit of added durability to a beneficiary interest group could balance out with the cost of securing the allocation in the first place.

3.3. RES JUDICATA AND RELATED DOCTRINES: THE DURABILITY OF TRIAL COURT DECISIONS

Another type of legal durability involves the durability of *trial court outcomes*. Decisions by a trial court may be more or less durable depending on the opportunities for the parties to have another panel reconsider the issues and potentially change the outcome. If one or both parties are barred from seeking a review of the decision, the original decision is more durable. Several prominent doctrines of legal procedure determine the durability of court decisions. The doctrine of *double jeopardy*, for example, prevents the prosecution from trying, through appeal or retrial, to overturn an initial trial acquittal. This doctrine makes one type of outcome—acquittal—more durable. Similarly, the doctrine of *collateral estoppel* determines when a judgment can be used to bar re-litigation of the same issues in a subsequent case. This doctrine makes the original judgment more durable. In general, the principle of *res judicata* bars re-litigation of a claim already decided by courts.

A standard rationale for these doctrines emphasizes the finality interest of the party who won the original decision (Westen, 1980:1033-5). That party, already having had to defend its position and having done so successfully, has a legitimate interest in seeing the legal challenge against him end once and for all. Another, economic-oriented, rationale suggests that by reducing the opportunity for future litigation these doctrines conserve litigation expense (Posner, 1998:635). Applying the framework of this paper suggests, however, that the added durability accorded to trial court decisions does not necessarily achieve these two goals.

Before examining the implications of the analysis, consider the proper interpretation of the model. In a trial setting, what does the initial entitlement, W_0, represent? One way to conceptualize an entitlement is to base it on the underlying substantive rules and facts surrounding the case and to identify the meritorious party as the entitlement holder. This approach is problematic as it embodies the idea that there exists one "correct" decision in the trial. It is also problematic because it would imply that if parties spend no litigation effort, the court must reach the correct decision. Alternatively, we can interpret W_0 to represent the burden of proof presumptions. In a criminal proceeding, W_0 is the presumption of innocence, namely, a defendant's entitlement for zero punishment. According to this interpretation, the "rent-seeker" is the prosecution, trying to "chisel" away a punishment. If no litigation effort is

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[32] Peter Westen, *The Three Faces of Double Jeopardy: Reflections on Government Appeals of Criminal Sentences*, 78 Mich. L. Rev. 1001, 1033-5 (1980).

[33] RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 635 (5th ed., 1998).

expended by the prosecution, the initial entitlement of zero punishment remains unscathed; and the more the prosecution spends, the higher will the punishment be.

Viewing a trial as a rent-seeking contest with an initial entitlement of zero sanction for the defendant suggests that the prosecution or the plaintiff's ability to extract a positive sanction depends on the assumptions regarding the effectiveness of litigation expenditures. Accordingly, which version of the model—and thus which of the propositions above—applies would depend, in part, on the merits of the case. In cases in which an innocent defendant can rebuke the prosecution's case against her by spending sufficiently in defense (i.e., cases in which a_1 is not prohibitive), the predictions of Sections 2.2 and 2.3 will hold. That is, the most that the prosecution can extract from a defendant who can establish innocence is a punishment that is equivalent, in terms of disutility, to the cost of defense. The prosecution could tailor its "expropriation" either by reducing the severity of the charge, or by tuning its offer for a plea bargain. Alternatively, in cases in which the defendant cannot rebuke the prosecution's case, the prosecution can extract a punishment in proportion to its investment of trial cost, and the prediction of Sections 2.4 and 2.5 will hold.

Thus, in situations in which the defendant can rebuke the case against her, several lessons can be derived from the analysis. Ex post, the defendant benefits from the added protection that a Durable regime such as double jeopardy provides. However, when trial decisions are known to be more durable, the ex ante effect is to make a favorable outcome more difficult to secure.[34] Nevertheless, Proposition 1 implies the defendant will still be better off under the Durable regime, due to the saving in exogenous defense costs. A meritorious defendant benefits by not having to repeatedly defend her position. In a criminal procedure, some of the main costs of defense borne by the defendant are exogenous, and thus subject to this "saving." In particular,

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[34] In the context of doctrines like double jeopardy and collateral estoppel, several authors have recently recognized the effect of durability on the incentives of litigants to invest in affecting the outcome at trial. Posner (1998:636) was perhaps the first to acknowledge that a party "might expend disproportionate resources on the trial of an issue, anticipating benefits from being able to use the judgment in subsequent litigation." The point was made in the early editions of Posner's textbook. It was first modeled by Stephen Spurr (1991). In a recent thoughtful analysis of the double jeopardy doctrine, Vic. Khanna (2002:343) focuses on the ex ante effect arising from asymmetric appeal rights and concludes that double jeopardy, by inducing the prosecution to increase its spending at trial, might paradoxically increase the chance of defendant's conviction--"Asymmetric appeal rights, by giving the prosecution only one shot at obtaining a conviction at the initial trial, may induce the prosecution to spend even *more* in the initial trial than if appeal rights were symmetric."

each round of litigation involves high fixed costs for the defendant (costs that are independent of the actual litigation effort expended), such as the restrictions on her liberty, the requirement of presence in the proceedings, the discomfort of undergoing investigation, and the fear of the potential non-pecuniary sanction, all of which are reduced if an acquittal is durable. To the extent that some defense costs are endogenous, Propositions 2 and 3 further suggest that the Durable regime might lead to either an increase or decrease in the trial-stage defense costs.

Another type of durability that can be accorded to findings of fact at the trial phase is a reversal of presumptions. A revisable decision is one that is durable, unless successfully challenged. For example, the collateral estoppel doctrine extends the validity of a decision beyond the specific dispute in which it was adjudicated, to other disputes as well, and thus has the effect of shifting from a Periodic to a Revisable regime. Proposition 1 suggests that the only effect of this added durability is on the division of litigation effort across time, with more effort being concentrated at the first trial instance.[35] Overall, though, the parties will devote as much litigation effort under the Revisable regime as under a Periodic regime, distributed differently over rounds. The bottom-line payoff to the "entitled party" (the party who, with sufficient expenditure, can prevail on the merits) would be unchanged.

In cases in which the initial entitlement for zero sanction cannot be effectively defended (say, because the prosecution or the plaintiff are meritorious), the analysis in Section 2.4 and Proposition 4 applies. When the opposing party (say, the prosecution) can reduce the well-being of the defendant by increasing the prosecutorial effort, it has been shown that the Durable and the Revisable regime lead to the same exact outcome. Thus, even if the prosecution would be entitled to appeal an acquittal and could potentially reserve litigation resources towards such a contingency, the prosecution would rationally choose to concentrate all of its resources at the trial level and forgo the opportunity to revisit the trial outcome.[36] As long as the return to litigation effort is at least as

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[35] The effect of increased trial-stage effort under the Revisable regime might be diminished by resource constraints. If, say, a party cannot shift the potential second-stage litigation resources to the first trial (say, if the state reduces the prosecution budget that would otherwise be allocated to appeals), the ex ante effect would not fully materialize. This effect is suggested by Khanna (2002:384-85).

[36] Khanna (2002:364-68) suggests that if the prosecution were able to appeal acquittals, it would save some effort for possible appeal. The analysis here demonstrates that this strategy could only be rational under the questionable assumption that prosecutorial effort yields greater return in the appeal.

high at the trial stage,[37] the only reason to reserve resources is in situations in which the outcome of the first trial is known to be inapplicable to future litigation (say, against third parties).[38] The tendency to concentrate resource at the initial trial stage would be weaker for a party that expects future litigation effort to be more productive (say, if more favorable evidence is expected to become available, or if the decision making panel is expected to be favorably biased in the next round). In such cases, under a double jeopardy doctrine the prosecution effort must still be concentrated at initial-trial stage, whereas in the Revisable regime the litigation effort would in part be shifted to the later stage in which it may be more productive.

   Thus, the lesson the analysis draws is that in order to understand the effects of the durability-of-judgment doctrines, it is important to examine how such doctrines influence the decisions to optimally allocate litigation effort across the different stages of litigation. The ex post view that is prominent in the legal literature, emphasizing finality and the "period-2" effect of reduction in litigation cost, is less conclusive once complemented by the ex ante view which focuses on the "price," in terms of legal expenditures, that would be required to obtain a favorable decision. It is the structure of litigation costs across periods, and not the finality of the judgment, that accounts for the parties' preference for durability.

3.4. THE DURABILITY OF ENTITLEMENTS IN PRIVATE LAW[39]

Legal entitlements may be more or less durable depending on the availability of enforcement measures when they are violated. But enforcement is costly and violations oftentimes pass unchallenged. Various legal doctrines deal with the effect of such under-protection. These doctrines determine if, and how quickly, the entitlement is lost due to lackluster enforcement. A landowner who does not take quick action against a person occupying or otherwise using her land might lose her rights through an adverse possession or prescription doctrine. An intellectual property right holder who does not enforce against an ongoing infringement might be barred from future enforcement through the doctrines of estoppel and laches. A contractual promisee might be unable to enforce an explicit contractual term if she has acquiesced in course of performance to a

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[37] The return to prosecutorial effort would be greater at the trial, relative to the appeal, stage because of the decay of evidence, the availability of more highly skilled defense attorneys specializing in appeals, and the cognitive tendency of decision makers to align with previous decisions.

[38] See Spurr (1991) analyzing the effect of future potential litigation against third parties on the incentives to spend at the initial trial.

[39] This section builds on Ben-Shahar, "The Erosion of Rights By Past Breach" (1999).

practice departing from the explicit contract. These and other similar "erosion of rights" doctrines are rules of durability: the more quickly the right can expire when under-enforced, the less durable it is.

Commentators have traditionally viewed these erosion doctrines as beneficial to violators and disadvantageous to rightholders. The logic of this view owes to the ex post perspective: other things equal, rightholders would prefer to have more durable entitlements and a lesser risk of erosion. In the area of contract law in particular, erosion doctrines have been rationalized as promoting flexibility. Again, other things being equal, an ongoing practice between the parties indicates their intent better than the "historical" document of agreement. Lisa Bernstein (1996) was perhaps the first to note, in the contractual context, that other things are *not* equal. Highlighting the ex ante effect of the course of performance doctrine, Bernstein discovered that the less durable the contractual right, the more strict will the rightholder be in guarding against violations of that right. With this greater motivation to guard the entitlement against breach, the rightholder's threat to enforce becomes more credible, thereby reducing—rather than increasing—the value that opportunistic violators can chisel.

The framework developed in this paper can help determine under what conditions a rightholder will suffer from the lesser durability that an erosion doctrine introduces. Within the model, an erosion rule is equivalent to a Revisable Allocation regime, since an early-period violation, if not contested, erodes the entitlement. The alternative regime, which does not permit rights to erode, is equivalent to a Periodic Allocation regime, since an early-period violation, even if not contested, does not change the entitlement at the late periods. Proposition 1 demonstrates that either rule generates the same level of utility for the entitlement holder (although they differ with respect to the distribution of value over time.) It also shows that the infringing party is better off under the erosion regime. Proposition 4 shows that only if the rightholder's defense cost is prohibitive will she be worse off under the erosion rule.

3.5. THE DURABILITY OF MARRIAGE

The following is a highly concise version of how the methodology in this article can be used in the context of marriage decisions. Since the decision to marry is greatly influenced by factors that are not captured in the rational choice model, the framework here is, of course, of limited application. Still, in the aggregate, it may describe marginal incentives.

Consider an asymmetric interaction between "partners," in which one partner (party B) is "dependent" on the other (party A) in some way and would thus benefit from its support—monetary, emotional, raising children, and the like.

Suppose that, within a marriage relationship, party B is entitled to this support and party A must provide it; and that party A cannot, while in the marriage relationship, cease the support nor search for different partnerships which may be more valuable for party A.

A Periodic regime is one in which marriage can be terminated without liability, at any time; thus, in every new period party A can decide either to remain in the relationship and continue to support B, or to leave. A Revisable regime is one in which marriage can be terminated, but only at a cost to party A. For example, a "for cause" divorce regime or any practice in which the one-sided dissolution of a relationship by party A is impossible, but rather a dissolution needs to be approved and can potentially be opposed by party B, fits the Revisable regime template. A Durable regime is one in which the marriage cannot be terminated—a no-divorce regime—or can be terminated only with party A having to continue to support B.

From party A's perspective, a Durable marriage regime limits his ability to walk away. Valuing this entitlement and recognizing that a decision to marry would forfeit it, party A will be more hesitant to enter the marriage. He would wait longer to acquire more reliable information about the quality of the match, and would forgo marriage more often. Party B would be less likely to extract the commitment from party A, when this commitment is durable. The absence of an "exit" option reduces the incidence of entry into the relationship. And conversely, a Periodic regime, while reducing the value of the relationship for party B, makes the relationship more likely to emerge in the first place. Thus, a less durable marriage is not necessarily worse for B, in fact, it may make B better off.

Thus, within the framework of this analysis (and recognizing, again, that it only captures one aspect of marital relationships), it is not the legal durability of marriage that determines how much marital support party B would enjoy: the more value B gets from A, the harder it is to secure. Rather, the well-being of B depends on the transactions costs of entering and exiting from marriages and how these costs are affected by the marriage and divorce doctrine. If, say, it is disproportionately costly to acquire information about the long-term propensities of party B and how valuable the marriage would be in the more remote future, a durable regime could potentially reduce the incidence of marriage by more than it increases the term of those marriages that do occur.

4. CONCLUDING REMARKS

This paper aims to capture a broad phenomenon that appears in various unrelated areas, the durability of legal allocation decisions. The analysis was

conducted rigorously, providing the benefit of generality and abstraction, but also hiding the nuances of the various applications. The discussion of various legal contexts illustrated the types of situations to which the analysis can be applied. What is left for this concluding remark is to state what this paper in *not* about.

The analysis of this paper focuses on the durability of allocation decisions. Allocation decisions are contests which the law, through various unrelated branches, referees. By restricting attention to allocation decisions, the paper explicitly ignores other types of legal decisions that might also be evaluated with respect to their durability–productive and other non-zero sum contests. Thus, in simplistic terms, the paper is interested in the durability of the division of the fixed-size pie, not in the durability of the production of a bigger pie. If a battery is made more durable due to improvements in technology, added durability may not cost more and consumers would clearly prefer the more durable batteries.

Thus, the analysis applies only to legal contests that have the zero-sum characteristic. A legislative process that creates winners without creating identifiable losers (say, when the budget can be increased) would not, then, fall within the scope of this analysis. Similarly, the analysis does not directly apply to the issue of durability of intellectual property rights. By setting the length of the rights, their durability is determined. However, this durability feature is known to affect the size of the pie, namely, the incentives to create value ex ante. Thus, it is not merely a distributive decision. Also, while it is clear that an innovator is better-off ex post the more durable the protection, it is not clear which party is worse off in a way that may lead it to object to the legal protection more vigorously. It is only when competing innovators are more likely to challenge the validity of the alleged innovation or more likely to preempt it in a way that would significantly reduce the likelihood of acquiring legal recognition of the innovation, that the effect highlighted by the analysis in this paper, that durability does not necessarily benefit the beneficiary of the allocation, would hold.

The analysis throughout this paper has not examined how durability rules and norms emerge. These rules and norms are often the product of a legal process that itself can be more or less durable. Thus, for example, a legal transition norm, which determines the durability of rules, can itself be more or less durable; the rules of divorce which determine the durability of marriages can, and every once in a while are, altered; statutory limitation periods, which determine the durability of entitlements, can be extended or shortened; and the like. Similarly, to the extent that durability of rules depends on the incentives of legislators to repeal previous enactments, these incentives might change over

time as a result of factors like changed personnel in Congress and shifts in the public attitude towards a captured legislature. Whether or not the lessons this article draws regarding the durability of allocation decisions also apply to the durability of durability rules, is beyond the scope of the present inquiry.

Appendix

Proof of Proposition 2.
The main step in the proof is to show that $y^{DUR} < y^{PER}$. Consider the following equation:

$$m \, a(y) - by = 0$$

Denote by $y(m)$ the solution to this equation. Notice that $y(1) = y^{PER}$, namely, y^{PER} is the solution to this equation for $m = 1$; similarly, $y(\frac{1}{2}) = y^{DUR}$, namely, y^{DUR} is the solution to this equation for $m = (\frac{1}{2})$. The concavity assumption regarding $a(y)$ implies that $ma(y) - by < 0$ for all $y > y(m)$, which can be stated as follows: For every y in the vicinity of $y(m)$,

$$m \, a'(y) - b < 0.$$

To determine the slope of $y(m)$, total differentiate the equation defining $y(m)$ w.r.t m:

$$a(y) + ma'(y)\frac{dy}{dm} - b\frac{dy}{dm} = 0$$

yielding:

$$\frac{dy}{dm} = \frac{ay(m)}{b - ma'} > 0$$

Thus, $y(1) > y(\frac{1}{2})$, or: $y^{PER} > y^{DUR}$.   Q.E.D

Proof of Proposition 3. Under the Periodic regime, at each period party B expects that, for any level of z_t he spends, he will be able to subsequently extract $\frac{b-1}{b}$ $a_t(z_t)$. That is, once $a_t(z_t)$ is determined, party B can expect to extract this value, less the cost involved in doing so, a cost of $y_t = a_t(z_t)/b$. The net payoff to

party B is thus $\frac{b-1}{b} a_t(z_t) - z_t$ (see Table 1). The level of z_t that maximizes this payoff, denoted by z_t^{PER}, satisfies:

$$a_t'(z_t^{PER}) = \frac{b-1}{b}.$$

Under the Durable regime, for any level of z_1 that he chooses, party B expects a net payoff of $\frac{2b-1}{2b} a_1(z_1) - z_1$. The level of z_1 that maximizes this payoff, denoted by z_1^{DUR}, satisfies:

$$a_1'(z_1^{DUR}) = \frac{2b-1}{2b}$$

Under the Revisable regime, the period 1 investment will equal z_1^{DUR} and the period 2 investment will equal z_t^{PER}.

Because $\frac{b-1}{b} > \frac{2b-1}{2b}$ for all b>1, it follows that $a_1'(z_1^{PER}) > a_1'(z_1^{DUR})$. The assumption that $a_1'' < 0$ implies that $z_1^{PER} < z_1^{DUR}$. Thus, $a_1(z_1^{PER}) < a_1(z_1^{DUR})$. From Proposition 1, we know that $U_A^{PER} = 2W_0 - (a_1(z_1^{PER}) + a_2(z_2^{PER}))$ and that $U_A^{DUR} = 2W_0 - a_1(z_1^{DUR})$. Because a_1 under the Durable regime is greater than a_1 under the Periodic regime (but not necessarily greater than $a_1 + a_2$), the comparison between U_A^{PER} and U_A^{DUR} is ambiguous. In particular, for sufficiently high values of $a_1(z_1^{DUR})$, the entitlement holder's utility under the Durable regime may be lower than her utility under the Periodic regime.
Q.E.D.

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