
OPTIMAL TIMING OF LEGAL INTERVENTION: THE ROLE OF TIMING RULES

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Responding to Jacob E. Gersen & Eric A. Posner, *Timing Rules and Legal Institutions*, 121 HARV. L. REV. 543 (2007).

In a recent Harvard Law Review article, Jacob E. Gersen and Eric A. Posner investigated the optimal timing of legislative action and the role of timing rules in constraining legislative action.¹ Although decisions about the timing of legal intervention are often as important as decisions about the content of new law,² the issue of timing rules had previously lacked systematic treatment in the literature. Gersen and Posner successfully fill this gap, providing a comprehensive and coherent discussion of the various constitutional, economic, practical, and theoretical issues involved in timing rules, while also developing a robust normative framework for assessing the optimal timing of legislation. In Part I of this Comment, we identify some of the issues that are relevant when considering the optimal timing of legislation. In Part II, we touch upon some of the points Gersen and Posner discussed, noting some opportunities they may have missed and formulating suggestions for future extensions of their work.

I. INVESTMENT THEORY AND THE OPTIMAL TIMING OF LEGAL INTERVENTION

Literature applying investment theory to legal intervention provides a normative framework for determining the optimal timing of legal intervention by a benevolent welfare-maximizing lawmaker. Investment theory is particularly germane to the question of the optimal timing of legal intervention because lawmakers, like agents making investment decisions, must act in an environment characterized by uncertainty.³ Due to uncertainty about potential changes in the regulated

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¹ See Jacob E. Gersen & Eric A. Posner, *Timing Rules and Legal Institutions*, 121 HARV. L. REV. 543 (2007).

² *Id.* at 544.

³ See Francesco Parisi, Vincy Fon & Nita Ghei, *The Value of Waiting in Lawmaking*, 18 EUR. J.L. & ECON. 131 (2004); Francesco Parisi & Nita Ghei, *Legislate Today or Wait Until Tomorrow? An Investment Approach to Lawmaking*, 23 J. OF PUB. FIN & PUB. CHOICE 19 (2005), reprinted

environment, a lawmaker cannot know ahead of time what law will be most appropriate for the future.⁴ The enactment and implementation of a new law necessitates expenditures that are for the large part sunk and irreversible, just as many investment situations require significant sunk costs.⁵ These costs cannot be recovered if the law later proves undesirable or is abrogated in subsequent time periods. The choice of timing in lawmaking is therefore critical. When choosing to enact a new law, a lawmaker gives up the option to postpone legal intervention until some later time. This lost option represents the “opportunity cost” of investing in a new law today.⁶ Postponing legal intervention, however, creates its own costs, inasmuch as the passage of time and changes in the regulated environment may decrease the effectiveness of old laws. To stretch Parisi and Ghei’s analogy, we can think of this as the “opportunity benefit” of investing in a new law today. In determining the optimal timing of legal intervention, these opportunity costs and benefits must be taken into account. Drawn from the investment literature, Parisi, Fon and Ghei’s formal model characterizes the value of waiting to enact a new law when legal intervention takes place under uncertainty.⁷ They identify several similarities between legal intervention and economic investments, including: (a) the sunk nature of lawmaking costs if the rule is repealed at a later time; (b) the uncertainty of the future benefits of legislation; and (c) the availability of an option to postpone legal intervention.⁸ The interaction of these factors determines the optimal timing of legal intervention. Parisi and Ghei apply this analysis in the context of privacy regulation, where the tradeoffs between the benefits of privacy protection and the potential costs of still-unidentified security challenges remain somewhat uncertain.⁹

The application of investment theory to the issue of optimal timing of legal intervention profoundly affects the logic of the analysis.¹⁰ The conventional wisdom on the optimal timing of lawmaking is that legal intervention is desirable whenever the present value of the expected benefits is at least as large as the cost of intervention. Investment the-

in LEGAL ORDERINGS AND ECONOMIC INSTITUTIONS 84 (Fabrizio Cafaggi, Antonio Nicita & Ugo Pagano eds., 2007).

⁴ Fabrizio Cafaggi, Antonio Nicita & Ugo Pagano, *Law, Economics, and Institutional Complexity: An Introduction in LEGAL ORDERINGS AND ECONOMIC INSTITUTIONS*, *supra* note 3, at 7.

⁵ *Id.*

⁶ Parisi & Ghei, *supra* note 3, at 88.

⁷ See Parisi, Fon & Ghei, *supra* note 3.

⁸ See *id.* at 191.

⁹ See Parisi & Ghei, *supra* note 3, at 94–96.

¹⁰ Cf. Robert S. Pindyck, *Irreversibility, Uncertainty and Investment*, 29 J. ECON. LITERATURE 1110 (1991).

ory, however, suggests that the conventional wisdom, which ignores the option values embedded in legal intervention, may lead to legal intervention taking place earlier than is optimal, with an excessively high rate of legal innovation. The precautionary principle, commonly cited in environmental protection policy, appears at first to point in the opposite direction. The precautionary principle, for example, which mandates immediate intervention in the face of risk of an irreversible harm, even when there is scientific uncertainty as to the likelihood or magnitude of the harm, is often viewed as ignoring the opportunity cost of precautions. In contrast to the option value principle, the precautionary principle seems to require intervention even when such action would not pass the scrutiny of conventional cost-benefit analysis (negative net expected present value). When framed correctly, however, the apparent contradiction between the precautionary principle and the option value principle disappears. In investment settings, the "value of waiting" is defined as the uncertainty associated with the irreversibility of the investment. In the case of the precautionary principle, the irreversibility needs to be counted on the benefit side as well as the cost side.¹¹ Lives lost and environments destroyed are examples of irreversible costs that can be prevented by precautionary lawmaking. Properly calculated, then, the option value can account for both the irreversible precautionary costs identified by net present value calculations *and* the irreversible potential harm that animates the precautionary principle.

Within the lawmaking context, timing rules restrict the discretion of political institutions, either delaying or expediting the pace of legislative action. In the ideal world of benevolent lawmaking, there would be no need to implement timing rules constraining the freedom of lawmakers. In a world characterized by uncertainty, the lawmakers' freedom to dynamically re-assess option values and modify a chosen course of action represents valuable flexibility. Restricting such freedom by tying the lawmakers' hands reduces the potential effectiveness of legislative action.

II. INTRODUCING AGENCY PROBLEMS: THE ROLE OF TIMING RULES

Although timing rules are not necessary in the ideal world of benevolent lawmakers, timing rules become important in the presence of

¹¹ See Kenneth J. Arrow & Anthony C. Fisher, *Environmental Preservation, Uncertainty, and Irreversibility*, 88 Q. J. ECON. 312, 313-14 (1974); see also Claude Henry, *Investment Decisions Under Uncertainty: The "Irreversibility Effect,"* 64 AM. ECON. REV. 1006 (1974). For a leading efficiency model incorporating option values, see A. Myrick Freeman, III, *The Sign and Size of Option Value*, 60 LAND ECON. 1 (1984).

agency problems and other forms of incentive misalignment. Gersen and Posner point out that “timing rules should be analyzed in the context of [a] principal-agent problem[]” in order to capture three relevant relationships: those between voters and legislators, Congress and committee members, and legislators and bureaucrats.¹² In this setting, timing rules can be interpreted as a partial solution to principal-agent problems and other political or deliberative failures. Given the cost of restricting lawmakers’ timing options, timing rules should be evaluated against other legal and institutional solutions to agency problems, and should be adopted only to the limited extent to which they represent the most effective instrument to address these problems.

By introducing an external institutional constraint that allows for monitoring by the principal, timing rules have a disciplining effect on the agent, thereby “reduc[ing] the ability of ill-motivated agents to make policy decisions that violate the preferences of political principals.”¹³ Timing rules operate in many directions to obtain this result: on the one hand they impose a specific timetable on legislators, giving the members of a committee and/or individual legislators sufficient time to form the competences needed for formulating appropriate legislation.¹⁴ On the other hand, timing rules operate at the level of voters: a delay rule, for example, could allow the public to acquire information in order “to combat the influence of private interest groups on legislation and to monitor legislative behavior more carefully.”¹⁵

A. *Computing the Option Value of Seven Timing Rules*

Lawmaking, where costs are irreversible and sunk by nature, is particularly sensitive to uncertainty — uncertain future costs and benefits, as well as changes in the regulated environment that may make an enacted law obsolete or less desirable.¹⁶

The model of legislation developed by Gersen and Posner targets the role of uncertainty in lawmaking. They specifically examine four timing rules, namely: (i) immediate legislation; (ii) deferred legislation; (iii) anticipatory legislation; and (iv) conditional legislation.¹⁷ We consider three additional rules: (v) sunset legislation; (vi) delayed legislation; and (vii) revisable legislation. The differences between these rules, which we formalize below, are relevant in light of the option value of delaying or expediting decisionmaking under uncertainty.

¹² Gersen & Posner, *supra* note 1, at 546–47.

¹³ *Id.* at 547.

¹⁴ *Id.*

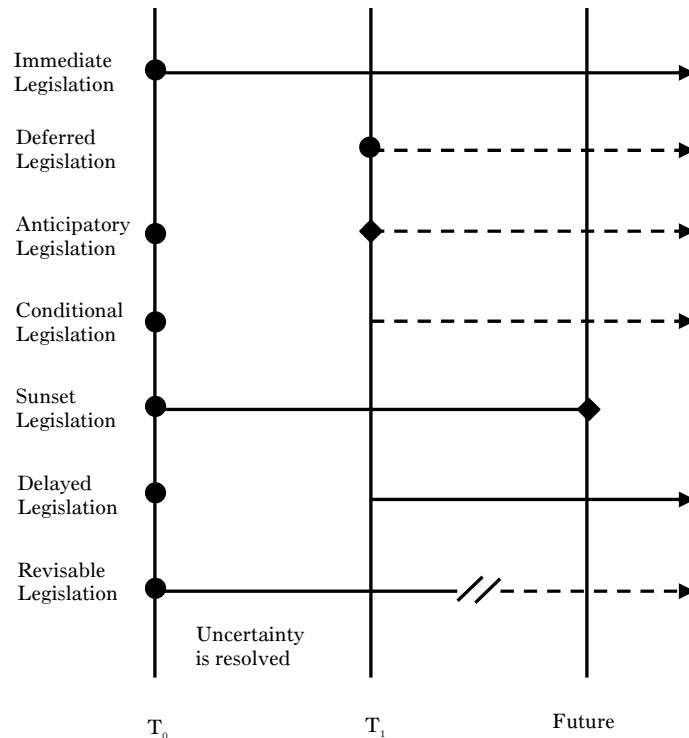
¹⁵ *Id.*

¹⁶ Parisi & Ghei, *supra* note 3, at 87.

¹⁷ Gersen & Posner, *supra* note 1, at 559–60.

Figure 1 provides a graphical representation of these rules. In the graph, continuous lines represent the period of effectiveness of the law, while dotted lines represent situations where the effectiveness of the law is contingent on some future event or legislative action. The round dots (•) represent the time at which lawmaking costs are incurred, while the diamonds (♦) represent the critical moments at which the effects of the law are felt or come to an end according to the timing rule.

FIGURE 1: SEVEN TIMING RULES



1. *Immediate Legislation.* — In the case of immediate legislation, the lawmaker enacts a law that produces immediate effects. Lawmaking costs are faced immediately and with certainty and the benefits of legislation are captured in the future with uncertainty. Using a notation analogous to Gersen and Posner's, the total benefit of immediate legislation introduced in period 0 is $B_0 + B^e$, where B_0 denotes the certain benefit of legislation in the initial period 0 and B^e represents the (discounted) expected benefit of legislation in future periods starting from $t = 1$. Extending Gersen and Posner's formulation, however, we suggest that immediate legislation also creates an obsolescence problem. Laws need to keep pace with social, economic, or technological

change and, over time, laws that were enacted in the past may prove to be unnecessary or even undesirable. For example, new safety technology on vehicles can render old safety standards obsolete or make existing driving rules undesirable. Keeping obsolete laws in force imposes costs on society. It is preferable to have no laws rather than obsolete ones. If p is the probability that the legislation will produce a positive benefit B_t in each period t , and $1 - p$ is the probability that the legislation will prove to be undesirable, imposing a negative obsolescence cost w_t , the expected benefit becomes equal to:

$$B^e = \sum_{t=1}^{\infty} d^t [pB_t + (1-p)w_t]$$

At time $t = 0$, the citizens adapt to the new legislation incurring a cost c_H , and the law is enacted incurring lawmaking cost k with certainty. Therefore, the net present value of immediate legislation can be calculated as:

$$NPV_I = B_0 + B^e - c_H - k$$

The value of immediate legislation provides a benchmark against which the following timing rules can be evaluated. A summary of these comparisons is presented in Table 1 below. The value of the following timing rules can also be used to identify the parameters that are potentially relevant for choosing the optimal timing rule.

2. *Deferred Legislation.* — When the timing rule provides the *option to defer* legislation, the law is passed in period $t = 1$ only if conditions materialize such that the enactment of the law creates the benefit B_t . Legislative costs k are incurred with probability p , that is, only if legislation is enacted. In this case, the expected discounted value of benefits will be the highest and will be equal to:

$$B^* = \sum_{t=1}^{\infty} d^t pB_t$$

Note moreover that given the delayed entry into force of the law, citizens have more time to adapt to the legislation. This adaptation occurs in period 1 at a cost $c_L < c_H$. The net present value of this legislative strategy as evaluated at $t = 0$, discounting payoffs, is:

$$NPV_D = B^* - dp c_L - dpk$$

The ability of lawmakers to postpone the investment in legislation is measured as an *option to defer*, which can be calculated as the difference between the net present value of deferred legislation and the net present value of immediate legislation:

$$NPV_D - NPV_I = -B_0 - w^e + (c_H - dp c_L) + (1 - dp)k$$

where $w^e = \sum_{t=1}^{\infty} d^t(1-p)w_t$ is the expected value of the law when undesirable.

The value of the option to defer is higher when: (1) the benefits obtainable from immediate legal intervention B_0 , are lower; (2) the costs of keeping an undesirable law in force are high (i.e., when w_t is high in absolute value);¹⁸ (3) immediate implementation would impose high adjustment costs; (4) legislative enactment costs are high; and (5) discounting is large. The effects of these parameters on the value of the option to defer are summarized in the first column of Table 1, where the upward arrows (\uparrow) indicate a positive correlation between the value of the option to defer and the value of the relevant parameter, and the downward (\downarrow) or bidirectional arrows (\updownarrow) indicate a negative or indeterminate relationship, respectively.

3. *Anticipatory Legislation.* — Under anticipatory legislation, the law is enacted at time $t = 0$ imposing a certain enactment cost k . The law, however, does not produce effects until time $t = 1$. This timing rule allows the lawmaker to repeal the statute if events observed or information obtained in the first period show that it would be undesirable to let the statute come into force. Since the lawmaker can repeal the law, the law will become effective only when the effects of the law are positive (i.e., when the expected benefits of the law are B^*). Repeal occurs with probability $(1-p)$ at time $t = 1$. If the law is repealed, a repeal cost k is incurred at time $t = 1$.¹⁹ The discounted net present value of this legislative strategy at time $t = 0$ is:

$$NPV_A = B^* - dp c_L - k - d(1-p)k$$

This timing rule offers an *option of exit through repeal*. The value of this option is the difference between the net present value of anticipatory legislation and the value of immediate legislation:

$$NPV_A - NPV_I = -B_0 - w^e + (c_H - dp c_L) - (1-p)dk$$

Despite the similarities in these derivations between deferred legislation and anticipatory legislation, these rules are affected by some parameters in opposite or different ways, as evident from the directions of the arrows in the first two columns of Table 1.

¹⁸ Recall that w_t is a cost, and therefore is negative.

¹⁹ In general, the legislative cost necessary for the enactment of a new law will be different and likely higher than the cost of repealing the same law at a later time. Since the results of our analysis do not depend on the size of these costs, we have chosen to follow the simplifying assumption that Gersen and Posner adopt, which is to model enactment and repeal costs as equal to a constant value, k .

For example, the value of p has a negative effect on the value of deferred legislation but an indeterminate effect on the value of anticipatory legislation. This indeterminacy is due to two countervailing effects: on the one hand, an increased in p decreases the possibility of repeal, thereby increasing the value of anticipatory legislation; on the other hand, the increase in p has the direct effect of reducing the option value of anticipatory legislation.

Anticipatory legislation and deferred legislation also react differently to the magnitude of lawmaking costs k , which has a positive effect on the value of deferred legislation and a negative effect on the value of anticipatory legislation. As with immediate legislation, the value of anticipatory legislation decreases as k increases because the cost of legislation is incurred at time $t = 0$ and the same cost is incurred again with probability $(1 - p)$ if the legislation is repealed at time $t = 1$.

4. *Conditional Legislation.* — Under conditional legislation, the law is enacted at time $t = 0$ at a certain lawmaking cost k . The effects are produced at time $t = 1$. The law, however, will not produce its effects if the benefit B_t is not realized (i.e., if the benefit falls below the delayed adjustment cost c_L). The expected benefits of the law will therefore be B^* . Since this law only goes into force conditionally, the law loses its effectiveness without a formal repeal and without incurring repeal costs. The value of this legislative strategy at $t = 0$ is:

$$NPV_{COND} = B^* - dp c_L - k$$

Unlike the case of anticipatory legislation, this timing rule offers an *option of exit without repeal*, with a value of:

$$NPV_{COND} - NPV_I = -B_0 - w^e + (c_H - dp c_L)$$

5. *Sunset Legislation.* — In the case of legislation containing a sunset provision, the effects of the law terminate after a specific date, unless the effectiveness of the law is extended by legislative action. With sunset legislation, the law is enacted at time $t = 0$ with lawmaking cost k and will remain effective for a specified period T after the initial enactment period, after which it stops producing its effects. The value of sunset legislation will therefore be:

$$NPV_{Sunset} = B_0 + p \bar{B}_{Sunset} - c_H - k$$

where the expected benefit of the legislation denoted as B_{sunset} will be collected only during the time period T , such that:

$$\bar{B}_{Sunset} = \sum_{t=0}^T d^t [p B_t + (1-p)w_t]$$

The sunset legislation offers an *option of preordered exit*, with a value equal to:

$$NPV_{Sunset} - NPV_I = -\left(\sum_{t=T+1}^{\infty} d^t [pB_t + (1-p)w_t]\right)$$

The value of this option is negatively affected by the possibility of foregone benefits from the lack of legislation in periods subsequent to the expiry date in periods $T + 1$ and following. The value of this legislative strategy is higher when there is a lower probability p that the law continues to produce benefits B_t after the chosen expiry date. Likewise, the value of sunset legislation increases in the presence of higher obsolescence costs w_t .

6. *Delayed Legislation.* — Delayed legislation is a commonly used legislative strategy in which a law is enacted specifying a later date for its entry into force. Delayed entry into force is often motivated by the need to allow adaptation and behavioral changes that cannot be expected to take place immediately. Enactment of the law provides notice, and induces individuals to adjust their behavior in preparation for the entry into force of the law, such as a smoking law, new emissions standards, and so forth. In our model, with delayed legislation the law is enacted at time $t = 0$ and comes into force at time $t = 1$. Lawmaking costs k are incurred at $t = 0$. This legislative strategy has the value:

$$NPV_{DEL} = B^e - dp c_L - k$$

The value of the *option to delay entry into force*, as compared to immediate legislation, is equal to:

$$NPV_{DEL} - NPV_I = -B_0 + c_H - dp c_L$$

The option to delay entry into force differs from the option to defer because in the former case, lawmaking costs are incurred at time $t = 0$ rather than at $t = 1$. The option to delay entry into force also differs from the option of exit without repeal because the effectiveness of the law is not conditional on the realization of B_t .

The value of this option is negatively affected by the possibility of foregone immediate benefits from the lack of legislation in $t = 0$. The value of this legislative strategy is higher when the adaptation cost c_H that citizens incur in period $t = 0$ is higher and/or the subsequent adaptation cost c_L is lower. This is because delayed legislation becomes more desirable as the benefits from an early announcement increase. Note that the value of delayed legislation is not affected either by the presence of higher enactment costs k , or by higher obsolescence costs w_t ; this is because in the case of immediate or delayed legislation, both factors affect the value of the law in the same way.

7. *Revisable legislation.* — Revisable legislation is enacted at time $t = 0$ and introduces legislation immediately, while allowing revision of the law at a later date. Revisable legislation should be considered for the purpose of a benchmark comparison with other timing rules. Revisable legislation is indeed the default option for lawmakers inasmuch as ordinary legislation can always be revised at a later date following similar legislative procedures. Similar to the case of immediate legislation considered by Gersen and Posner, in which a law once enacted is subject to obsolescence, with revisable legislation the lawmaker generates the benefit of immediate legislation, having a legal rule in the present, without necessarily imposing the cost of obsolescence in the event of unforeseen changes in the regulated environment. The revisable nature of legislation allows the general public to adjust their behavior while taking into account the possibility that the legislation will be revised in the future. If legislation becomes obsolete the lawmaker can revise it at time t_R , achieving benefits $B_{R,t}$ starting at $t_R + 1$ throughout all subsequent periods. Revision becomes necessary with probability $(1 - p)$. In the case of revisable legislation, the expected discounted payoff B_R^e is given by the discounted value of the revised legislation, that is:

$$B_R^e = \sum_{t=t_R}^{\infty} d^t (1-p) B_{R,t}$$

The negative cost associated with legal obsolescence is sustained only for the first t_R periods; this cost can be indicated as:

$$\omega_R = \sum_{t=1}^{t_R} d^t (1-p) \omega_t$$

The discounted net present value of this legislative strategy is given by:

$$NPV_R = B_0 + B^* + \omega_R + B_R^e - c_H - k$$

The *option to revise legislation* takes the following value:

$$NPV_R - NPV_I = (1-p) \sum_{t=t_R}^{\infty} d^t [B_{R,t} - \omega_t]$$

The value of the option to revise legislation is higher when the expected gain from amending legislation is higher or when there are high costs associated with keeping obsolete laws in force. The value of the option to revise legislation is higher when there is a higher probability of needing a revision (i.e., higher values of $(1 - p)$). The cost asymmetry to adapt to the law plays no role, since the law under both immediate legislation and revisable legislation will be effective in $t = 0$, imposing the same implementation cost on the public.

Table 1 summarizes the discussion above, demonstrating how the option values of the six timing strategies are affected by the various parameters.

TABLE 1: EFFECT OF PARAMETERS ON VALUE OF TIMING RULES

Parameters	VALUE OF OPTIONS*					
	Deferred Legislation	Anticipatory Legislation	Conditional Legislation	Sunset Legislation	Delayed Legislation	Revisable Legislation
	Option to Defer	Option of Exit with Repeal	Option of Exit Without Repeal	Option of Preordered Exit	Option to Delay Entry into Force	Option to Revise
B_o, B_D, B_R	↓	↓	↓	↓	↓	↑
w_i	↑	↑	↑	↑	No effect	↑
p	↓	↕	↓	↓	↓	↓
$c_H - c_L$	↑	↑	↑	No effect	↑	No effect
d	↓	↓	↓	↓	↓	↑
k	↑	↓	No effect	No effect	No effect	No effect

* The value of the options is computed in comparison to the value of Immediate Legislation.

B. The Role of Cost Structure in the Legislative Process

The legislative process entails substantial — and at least partially sunk — costs that play a central role in establishing the optimal timing of lawmaking.²⁰ There are a variety of sunk costs in lawmaking, including drafting, publication and notice costs, as well as learning and adjustment costs for the public and the courts.²¹ These costs may be for the most part irreversible, given the sunk nature of these investments if the law is repealed. The costs of legal innovation may be exacerbated by the shocks that changes in the status quo of legal entitlements impose on members of society and on institutions.²²

Timing rules allow lawmakers to postpone investments in new laws to account for the uncertainty of future benefits. However, delaying legal intervention can be socially costly, given the foregone benefits of immediate intervention. The economic convenience of the decision to defer legislation depends crucially on the dynamic pattern of the cost structure of lawmaking. The cost of the legislation is not constant across time periods, but may evolve in response to changes in the regulated environment, the availability of new information through re-

²⁰ Parisi & Ghei, *supra* note 3, at 86.

²¹ See Parisi, Fon & Ghei, *supra* note 3, at 135.

²² *Id.*

search, technical progress and scientific discoveries, and opportunities to observe the application of alternative regulatory solutions in other jurisdictions.

The cost structure of the lawmaking process may evolve in two different directions. On the one hand, the rate of economic and technological change over time may increase the cost of the legislative process. In an economic and social environment which is facing new challenges and a rising level of complexity, the cost of lawmaking in the future may be higher, even if a higher benefit may be attained due to the ability to enact better legislation that better fits the environment. On the other hand, uncertainty may be resolved over time, thereby decreasing the cost of future legal intervention. A better knowledge of the social and economic environment may allow lawmakers to deliver optimal legislation at a lower cost.

The different dynamic pattern of cost structure affects the optimal choice of legal rules. This question can be addressed directly in the framework developed by Gersen and Posner, assuming that the pattern of cost evolves across time periods. Let us indicate the cost of delivering legislation in the first period as k_1 and in the second period as k_2 . This has a direct effect on the incentives of the lawmaker to decide when (and whether) to regulate. Taking the first and last of the timing rules considered in Part II to illustrate the point, we can recast the value of immediate legislation as:

$$NPV_I = B_0 + B^e - c_H - k_1$$

Similarly, the value of deferred legislation becomes:

$$NPV_D = B^e - dp c_L - dp k_2$$

Different hypotheses on the evolution of cost structure would yield different results on the value of the option to defer legislation, which becomes:

$$NPV_D - NPV_I = -B_0 + (c_H - dp c_L) + k_1 - dp k_2$$

In the case of increasing legislative costs, $k_1 < k_2$, the value of the option to delay decreases, lowering the incentive to postpone legislation and making immediate legislation more attractive. In the case of decreasing legislative costs, $k_1 > k_2$, the value of the option to defer legal intervention rises and postponing legislation is favored. Note that in the case of anticipatory and conditional legislation, the lawmaker would act at time $t = 0$, incurring the cost k_1 . Hence, changes in the

subsequent pattern of lawmaking costs would not influence the values of anticipatory and conditional legislation.²³ The same holds for sunset, delayed, and revisable legislation, all of which impose an enactment cost at time $t = 0$.

III. OPTIMAL TIMING WITH VARIABLE SPECIFICITY

At any point in time, lawmakers decide whether to enact new laws, controlling both the timing of legal intervention and the degree of specificity of the new laws. In the law and economics literature, the issue of optimal timing has been treated as independent from the issue of specificity. For example, much of the discussion of rules versus standards is carried out assuming no degree of freedom in the timing of legal intervention and in the implementation of the new legal rules.²⁴ Gersen and Posner follow in this tradition, giving no explicit consideration to the fact that the choices of timing and degree of specificity are closely interrelated. Separating the two dimensions of the problem is analytically convenient but overlooks the important interrelation between these two dimensions of the problem. In the context considered by Gersen and Posner, introducing constraints in the form of timing rules may have effects on the choice of specificity, and vice versa. The lawmaker's two optimization problems (optimal timing and optimal specificity) are intertwined, and the choice of a timing constraint unavoidably triggers adjustments in the level of specificity. For example, lawmaking costs are likely to be related to the inherent characteristics of the law. Detailed rules, for example, are more sensitive to exogenous, unforeseen changes in the regulated environment, making them more prone to obsolescence.²⁵

In Gersen and Posner's list of timing rules, the basic tradeoff between the choice of whether to legislate now or in the future is renewed at every time period. The presence of "live" timing options affects the legislative process and the design of legislation. In this setting, the problem of optimal specificity can be considered in conjunction with the problem of timing. Analytically, the choice of speci-

²³ The value of the option of exit through repeal is $-B_0 - w^e + (c_H - d\phi c_L) - d(1 - \rho)k_1$, which does not change.

²⁴ In the existing literature, the problem of the optimal degree of specificity of legal rules was first discussed by Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257 (1974); and Alan Schwartz & Robert E. Scott, *The Political Economy of Private Legislatures*, 143 U. PA. L. REV. 595 (1995), who compared the alternative legal instruments of rules and standards through a static optimization model and as a single-shot, multi-stage game, respectively. Kaplow also discusses this issue in Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992).

²⁵ Vincy Fon & Francesco Parisi, *On the Optimal Specificity of Legal Rules*, 3 J. INSTITUTIONAL ECON. 147-64 (2007). The cost of enacting new laws may also depend on their level of specificity.

ficity embeds a timing problem: when the rule is fully specified *ex ante*, there is less reliance on judicial implementation for the specification of its content. Conversely, when the law is formulated with less specificity as, for example, a general standard, *ex post* judicial interpretation of the law becomes more critical to give it some precise content. The optimal timing problem should be studied in conjunction with the optimal specificity problem presented in the law and economics literature, to allow a more complete understanding of real-life law-making problems.

Within the framework developed by Gersen and Posner, this question could be addressed by extending the lawmaker's time horizon. This would allow a law to be postponed for more than one time period. The interaction between an extended time horizon and dynamic cost structures may lead to more articulated patterns in the optimal timing of legal rules.