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Customary Law and Articulation Theories: An Economic Analysis

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ABSTRACT: Notable scholars have considered the conditions under which rules of customary law can emerge spontaneously through the voluntary interaction and exchange of individual members of a group. In this paper, we model the process of customary law formation under different regimes. We start by considering a traditional model of customary law where legal rules emerge out of past practice. Once established by practice, legal customs enjoy reciprocal application among the parties. Our model reveals the limits of the process of custom formation when choices are sequential and players know their roles at the time of strategy selection. After studying the effect of reciprocity, we examine the effects of "articulation" theories, which allow the players to select a strategy before their respective roles are unveiled. The welfare analysis of the alternative mechanisms of custom formation reveals the advantages and limits of the various processes of customary law formation.

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In this paper, we model the process of customary law formation under different legal doctrines and regimes. Legal scholars have recently criticized the traditional doctrines of customary law for being tautological, non descriptive of actual practice, and unable to provide meaningful normative guidance in the adjudication of customary rules. Most recently, Goldsmith and Posner (1999 and 2000) have critiqued traditional theories of customary law, suggesting that customary rules emerge out of a coincidence of interest, rather than a sense of legal obligation.[3] We begin considering the extent to which the coincidence of the parties' normative interest is sufficient to yield efficient rules of customary law. In modeling the formation of customary rules, we pay close attention to the timing of a party's articulation of her beliefs and the timing of her action. Building upon the findings of D'Amato (1971 and forthcoming) and Parisi (1998), we extend our analysis to consider new theories of customary law formation, with special emphasis on the role of articulation. According to these theories, in the process of ascertaining the

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[3] Goldsmith and Posner (1999 and 2000) question theories of international law that base custom on some sense of exogenous obligation by the states.

existence and content of customary rules, the parties' statements and expressions of belief are relevant.[4]

The paper is structured as follows. In Section 1, we present the traditional doctrines of customary law, which provide the legal framework for the formation of customary law. In Section 2, we model the traditional process of custom formation for the case of bilateral custom. In Section 3, we extend the bilateral custom model to the case of multilateral custom, and to situations of uncertainty and delay in the formation and recognition of an emerging custom. We assess how the participation and effort incentives of the parties are affected by the presence of such conditions. Participation and effort incentives assume particular importance for identifying the limits of the traditional customary processes in real-life conditions.

These limits are revisited in Section 4, examining the potential role of alternative doctrines and processes of customary law formation in mitigating the shortcomings of traditional customary law theory. Here, we introduce a variation in the process of custom formation, by allowing parties to express their consensus over emerging rules of custom prior to the time of their action through practice. We model the process of custom formation under such alternative doctrines and identify the respective limits and advantages of the alternative frameworks of custom formation in different environmental settings.

1. The Formation of Customary Law

There are relatively few principles that govern the formation of customary law. The theory of customary law defines custom as a practice that emerges outside of legal constraints, and which individuals and organizations spontaneously follow in the course

[4] D'Amato (1971 and forthcoming) considers articulation as a formative element of international customary law. In D'Amato, this element operates in conjunction with state practice and abstention. In this paper, we utilize D'Amato's concept of articulation, but push this notion beyond its intended scope. Our model of articulation processes allows parties to express their consensus over potential rules prior or concurrent to the time of their action through practice. When articulation occurs before any customary practice, articulation can replace actual action and by itself generate a rule of customary law. In both cases, custom emerges when parties undertake an action that is consistent with their expression of normative views contained in their prior or concurrent articulations.

of their interactions out of a sense of legal obligation.[5] Gradually, individual actors embrace norms that they view as requisite to their collective well-being. According to such traditional theories, an enforceable custom emerges from two formative elements: (a) a quantitative element consisting of a general or emerging practice; and (b) a qualitative element reflected in the belief that the norm generates a desired social outcome.

(A) *The Quantitative Element.* The quantitative requirements for the formation of customary law concern both the length of time and the universality of the emerging practice. Regarding time, there is generally no universal minimum duration for the emergence of customary rules. Customary rules have evolved from both immemorial practice and single acts. Still, French jurisprudence has traditionally required the passage of forty years for the emergence of an international custom, while German doctrine has generally required thirty years (Tunkin, 1961; and Mateesco, 1947). Naturally, the longer the formative stage of custom, the less likely it is for custom to effectively provide a viable substitute for formal law or treaty agreements, and to adapt to changing circumstances over time.

Regarding the condition of universality, international legal theory is ambivalent. Charney (1986) suggests that the system of international relations is analogous to a world of individuals in the state of nature, dismissing the idea that unanimous consent by all participants is required before binding customary law is formed. Rather than universality, well-accepted restatements of international law refer to consistency and generality (D'Amato, 1971; Brownlie, 1990). Where it is impossible to identify a general practice because of fluctuations in behavior, the consistency requirement is not met. Similarly, more recent cases in international law restate the universality requirement in terms of increasing and widespread acceptance, allowing special consideration for emerging general norms (or local clusters of spontaneous default rules) that are expected to become widespread over time.

[5] See Article 38(1)(b) of the Statute of the International Court of Justice, and Restatement (Third) of the Foreign Relations Law of the United States, § 102(1).

With regard to rules at the national or local level, the varying pace at which social norms are transformed suggests that no general time or consistency requirement can be established as an across-the-board condition for the validity of a custom. Some variance in individual observation of the practice should be expected because of the stochastic origin of social norms. A flexible time requirement is particularly necessary in situations of rapid flux, where exogenous changes are likely to affect the incentive structure of the underlying relationship.

The findings of this paper will shed light on the appropriate design of customary processes, providing guidance in the judicial task of adjudicating customary rules, with respect to both issues of timing and sufficient consistency of application.

(B) *The Qualitative Element*. The second formative element of a customary rule is generally identified by the phrase *opinio iuris ac necessitatis*, which describes a widespread belief in the desirability of the norm and the general conviction that the practice represents an essential norm of social conduct. This element is often defined in terms of necessary and obligatory convention (Kelsen, 1939 and 1945; D'Amato, 1971; Walden, 1977). The traditional formulation of *opinio iuris ac necessitatis* is problematic because of its circularity. It is quite difficult to conceptualize that law can be born from a practice which is already believed to be required by law. The traditional requirement that the parties involved must believe in the normative principle embedded in the emerging practice (*opinio iuris*) may be appraised as a belief of social obligation, arising in response to game inefficiencies, to support behavioral rules that avoid aggregate losses from strategic behavior.[6] In this paper, we consider Goldsmith and Posner's (1999 and 2000) critique of *opinio iuris*, according to which rules of customary law emerge out of a coincidence of interest, rather than a sense of legal obligation. We build on this insightful

[6] The practical significance of this requirement is that it narrows the range of enforceable customs: only those practices recognized as socially desirable or necessary will eventually ripen into enforceable customary law. Once there is a general consensus that members of a group ought to conform to a given rule of conduct, a legal custom can emerge when some level of spontaneous compliance with the rule obtains. As a result, observable equilibria that are regarded by society as either undesirable (e.g., a prisoner's dilemma or an uncooperative outcome) or unnecessary (e.g., a common practice of greeting neighbors cordially) will lack the qualitative element of legal obligation, and therefore will not generate enforceable legal rules.

critique to verify the extent to which the coincidence of the states' normative interest may indeed be sufficient to yield efficient rules of customary law.

2. A Model of Customary Law Formation

Customary rules emerge from past practice. Prior to the consolidation of a practice into a binding custom, parties engage in actions on a purely voluntary basis.[7] There are two main factors that influence an individual actor's choice to engage in a given action: (a) the immediate costs and benefits of the action (i.e., *circumstantial interest*); and (b) the interest that they may have in establishing a customary rule, which would bind for the future (i.e., *normative interest*).

What distinguishes an emerging custom from a mere usage is the expectation that the current practice may lead to a binding customary rule. Such normative expectations contribute to influence the parties' actions. The relative importance of circumstantial and normative interests in influencing a given action obviously depends on the specific situation. In some cases, the circumstantial interest is of decisive importance: parties engage in a specific action due to their immediate interest (e.g., it is in their self-interest to do so at the present time), regardless of the expectation that such action may generate a binding rule for the future. In other cases, the normative interest dominates: parties engage in a certain activity in order to establish a binding custom that will govern future interactions.[8]

While in some situations the motives of action may converge, in other cases, there is a possible tension between circumstantial and normative interests.[9] In the presence of

[7] See, however, Goldsmith and Posner (2000) discussion of the use of coercion by a powerful state to impose rules of international law.

[8] We make no claims with respect to the long-term stability of the rule that emerges. In fact, our analysis is perfectly consistent with that of Goldsmith and Posner (1999 and 2000), who argue that the behavioral regularity will disappear if the normative interests of the nations change. In this paper, we allow however for the rule to have some short-term binding effects, constraining states from departing from an accepted rules, in pursuit of their circumstantial short-term interests.

[9] In some instances, following a given practice would satisfy both the circumstantial and the normative interests of the parties. Put differently, participation may be Pareto superior at each time period. All parties would benefit from the compliance with the custom during each time period. Following the emerging custom would always be a dominant strategy for all parties. Consequently, such practices would become self-enforcing since no party would ever face a temptation to depart from them. Thus, at the limit, the recognition and enforcement of such practices as rules of customary law would be unnecessary. These

such a conflict, the process of formation of customary law poses a cooperation problem. In this paper, we investigate the process of customary law formation in this group of situations. We assume that at each moment in time, the circumstantial interest of one party is in conflict with the commonly shared normative interests of the parties. More specifically, we consider the case of customary practices that, at each instance of practice, create costs on one party, while generating benefits to others. Such customary practices are desirable because the total benefits exceed the total costs incurred by the various parties. We start considering the case of bilateral practices and will later extend the analysis to multilateral practices.

In each period, a party can expend a level of effort e to generate some benefit for another party. The social net payoff is the sum of costs and benefits for all parties. Thus, the social net benefit from e is:

$$SNB = -ae^2 + be \qquad (1)$$

Here, it is assumed that the marginal cost of effort is increasing: $MC = 2ae$ is an increasing function of e. The marginal benefit of effort is assumed constant and independent of e: $MB = b$. In each period, the social optimal level of effort e^S is determined by equating social marginal cost and marginal benefit. That is, the social optimum is given by:

$$e^S = \frac{b}{2a}. \qquad (2)$$

We shall now consider the extent to which customary law processes are capable of approaching such social optimum. We shall start with a standard bilateral custom problem.

2.1 Formation of Custom: Bilateral case

Consider the case of two parties faced with a voluntary participation problem in the absence of an existing custom. Voluntary participation to a new practice would impose costs on one party while conferring benefits on another. As an illustration, it is

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practices fall outside the scope of the present analysis, since they would not pose strategic compliance problems.

useful to think of one party facing an emergency, and the other party facing the decision of whether to voluntarily rescue the other. For a rescue that nets some degree of success, the marginal cost of the activity is lower than the social benefit, thus ensuring that rescues are socially desirable.

In period 0, a party is confronted with the need to exert some effort to rescue another party. If he undertakes the rescue, he would bear cost ae^2 while the other party would receive benefits be. These immediate costs and benefits are the parties' circumstantial interests. Note that the circumstantial interests of the parties have different signs. In our example, the circumstantial interest of the rescuer is negative, $-ae^2 < 0$, while the rescued party faces a positive circumstantial interest, represented by benefit $be > 0$. In our example, the choice of action is in the hands of the rescuer, not the rescued party, who is a passive recipient of the benefit. It is thus sufficient to consider the participation and incentives of the party who faces negative circumstantial interests.[10]

The parties are engaged in repeat interaction. After the initial time period 0, starting from period 1 to infinity, the parties alternate roles (role reversal). Their future roles (as rescuers or rescued, in our example) are only known on a probabilistic basis. In each period, there is probability p that a given party will be the beneficiary of other parties' activities (in our example, this represents the probability of being rescued). On the other hand, there is a probability of $1-p$ that a given party will continue to be on the giving side (in our example, that would be the probability that the party would again need to rescue others).

We start considering the case in which socially desirable practices are followed, subject to reciprocity. Reciprocity extends both to the participation in the emerging practice and to the quality or effort level of the reciprocating conduct. This starting point allows us to identify with greater clarity, the extent to which the acting party's normative interest may lead to action and customary practice. In doing so, we assume that whatever the level of effort chosen by the party, he can expect that the effort will be reciprocated

[10] In the more general case of customary practice, this implies assuming away situations in which the initiators of the customary practice can create a benefit for themselves, regardless of the other parties' participation and reciprocal compliance.

when he needs to be rescued.[11] Hence, in each of the future periods, the party's expected payoff is given by:

$$pbe-(1-p)ae^2 .$$

Assuming that the party has a discount rate r, $r>0$, then the total discounted value of expected payoffs from future periods is: [12]

$$\sum_{t=1}^{\infty}\frac{1}{(1+r)^t}(pbe-(1-p)ae^2)=\frac{1}{r}\cdot(pbe-(1-p)ae^2).$$

The problem facing the individual party who is confronted with the responsibility of being the rescuer in period 0 while in some future period may become the rescued or the rescuer is then given by the following:

$$\max_e P=-ae^2+\frac{1}{r}(pbe-(1-p)ae^2). \qquad (3)$$

The optimal level of effort e^C is easily seen to be given by the following:

$$e^C=\frac{p\,b}{2a(r+1-p)}. \qquad (4)$$

Substituting the optimal value of e^C into the objective function of the party gives the following maximal payoff:

$$P^C\equiv P(e^C)=\frac{p^2b^2}{4ar(r+1-p)} \ . \qquad (5)$$

2.2 Participation constraint

Given these premises, we can consider the extent to which the acting party's circumstantial and normative interests may lead to action and participation in the emerging customary practice. In our specific example, in order for the party to be willing to participate in the rescue venture, we should verify whether the participation constraint

[11] For a more general model of reciprocity in cooperation problems, see Fon and Parisi (2003).

[12] Note that $\sum_{t=0}^{\infty}\frac{1}{(1+r)^t}=\frac{1+r}{r}$.

is satisfied. In particular, $P^C \geq k$ must hold for some k. From equation (5) it is easy to see that the following comparative statics hold.

$$\frac{\partial P^C}{\partial a} < 0, \ \frac{\partial P^C}{\partial b} > 0, \ \frac{\partial P^C}{\partial r} < 0, \ \frac{\partial P^C}{\partial p} > 0.$$ [13]

Thus, *ceteris paribus*, the participation constraint is less likely to be satisfied when the cost of the activity is higher, as represented by a larger *a*. Likewise, an increase in the party's discount rate, *r*, renders the participation constraint less likely to be satisfied. These results are fairly intuitive if we consider that participation to our emerging customary practice imposes a present cost for the expectation of a future benefit, a benefit whose present value is reduced by higher discount rates. On the other hand, the participation constraint is more likely to be satisfied if the benefit from reciprocal cooperation, *b*, is greater, and if the probability of being on the benefiting side in future time periods, *p*, is higher.

2.3 Incentive Problem

The fulfillment of the participation constraint represents a necessary condition for the emergence of a custom. But efficient customary norms also require that the participating parties undertake optimal levels of effort in the specific activity. In this section, we investigate whether the process of customary law formation creates optimal incentives for the participating parties.

From the optimal effort level (4), first observe the following:

(i) If $p = 0$, $e^C = 0$.

(ii) If $p = 1$, $e^C = \frac{b}{2ar}$.

These extreme cases are intuitive. When the probability of benefiting from the emerging custom is null (e.g. the rescuing party knows that it will never need rescue from others in

[13] Specifically, $\frac{\partial P^C}{\partial a} = \frac{-p^2 b^2}{4a^2 r(r+1-p)} < 0$, $\frac{\partial P^C}{\partial b} = \frac{p^2 b}{2ar(r+1-p)} > 0$,

$\frac{\partial P^C}{\partial r} = \frac{-p^2 b^2 (2r+1-p)}{4ar^2 (r+1-p)^2} < 0$, $\frac{\partial P^C}{\partial p} = \frac{b^2[2p(r+1-p)+p^2]}{4ar(r+1-p)^2} > 0$.

the future), expending any effort in the present time would impose a cost with no corresponding future benefit; thus the party will rationally choose zero effort level: $e^C = 0$. This is true in spite of the assumed reciprocity. Reciprocity is vacuous in this case, since the acting party will never be in a position to benefit from reciprocation in the future.

On the other hand, the benefits from reciprocal behavior are at their highest when there is certainty that the acting party will be on the receiving side of the emerging custom in the future. In this case, the party's best action is to set a higher standard of conduct in the present time, in expectation of the higher obtainable benefits. The optimal conduct will balance current payoff versus discounted future payoff: $e^C = b/2ar$. The optimal level of effort critically depends on the party's discount rate.[14]

Comparing the social optimal level of effort (2) and the private optimal level of effort (4), we note the following.

$$e^C < e^S \Leftrightarrow p < \tfrac{1}{2}(1+r) \qquad (6)$$

$$e^C = e^S \Leftrightarrow p = \tfrac{1}{2}(1+r) \qquad (7)$$

In order for the private and the social optimal levels of effort to be identical, whenever p is less than or equal to $\frac{1}{2}$, the discount rate r must be less than or equal to zero. But, in the realistic case of positive discount rates, the private optimum will not be the same as the social optimum unless $p > \frac{1}{2}$. Thus, symmetric parties with positive discount rates will not have optimal incentives under the traditional process of custom formation with role-reversibility. Symmetric parties with p approaching $\frac{1}{2}$ will undertake socially optimal effort only in the limit case of r approaching 0. Only in this limited instance will the private optimum under classical customary law and the social optimum coincide. Also, when $p = 1$, r must be 1 for the private and the social optima to be the same.

[14] If the party faces a discount rate of 100%, *all* future benefits count as much as this period's cost. Setting the present marginal cost and the future marginal benefit equal gives $e^C = b/2a$. This is exactly $e^C = b/2ar$ when $r = 1$. On the other extreme, assume that the party cares about the future greatly and hence the discount rate r becomes very small. Then the sum of *all* future benefits far exceeds this period's cost, and the party prefers to provide a large amount of effort, given the promise of future reciprocation. The fact that $e^C = b/2ar$ increases without bound as r approaches 0 is consistent with this intuition.

Returning to the privately optimal level of effort given in (4), it can easily be seen that the following comparative static results hold:

$$\frac{\partial e^C}{\partial a} < 0,\ \frac{\partial e^C}{\partial b} > 0,\ \frac{\partial e^C}{\partial r} < 0, \text{ and } \frac{\partial e^C}{\partial p} > 0.$$ [15]

Thus, *ceteris paribus,* the parties' level of effort in the formative stage of the customary rule will be lower when the cost of the activity is higher, as represented by a larger *a*. On the other hand, the privately optimal level of effort will increase if the benefit from reciprocal compliance, *b*, increases and if the probability of being on the benefiting side of the customary practice in future time periods, *p*, increases. Further, from the fact that $\frac{\partial^2 e^C}{\partial p^2} > 0$, we deduce that, given a fixed discount rate r, the optimal effort curve increases at an increasing rate in terms of the probability p of being a beneficiary of the emerging custom in the future.[16] Likewise, $\frac{\partial e^C}{\partial r} < 0$ indicates that as the discount rate falls, the optimal level of effort increases and the optimal effort curve shifts up. This is intuitive if we consider that effort spent towards an emerging customary practice imposes a present cost for the expectation of a future benefit (whose present value is increased by lower discount rates).

Figure 1 presents a few optimal effort curves. Recall that when $p = 0$, $e^C = 0$, and when $p = 1$, $e^C = \frac{b}{2ar}$. Thus all optimal effort curves start from the origin and end at $b/2ar$ when $p = 1$. In the figure, the lowest optimal effort curve corresponds to $r = 1$. Note that when $r = 1$, future payoffs are discounted at 100% in each period, and the total discounted value of *all* future payoffs is weighted equal to the current period (period 0) payoff. In order for the party to be willing to expend the socially efficient level of effort,

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[15] Specifically, the comparative statics are: $\frac{\partial e^C}{\partial a} = \frac{-pb}{2a^2(r+1-p)} < 0,\ \frac{\partial e^C}{\partial b} = \frac{p}{2a(r+1-p)} > 0,$

$\frac{\partial e^C}{\partial r} = \frac{-pb}{2a(r+1-p)^2} < 0,\ \frac{\partial e^C}{\partial p} = \frac{b(r+1)}{2a(r+1-p)^2} > 0.$

[16] In particular, $\frac{\partial^2 e^C}{\partial p^2} = \frac{b(r+1)}{a(r+1-p)^3} > 0.$

he must be assured that he will be the one who is rescued in the future, since he must expend his effort upfront in the current period to rescue some party. That is, when $r = 1$,

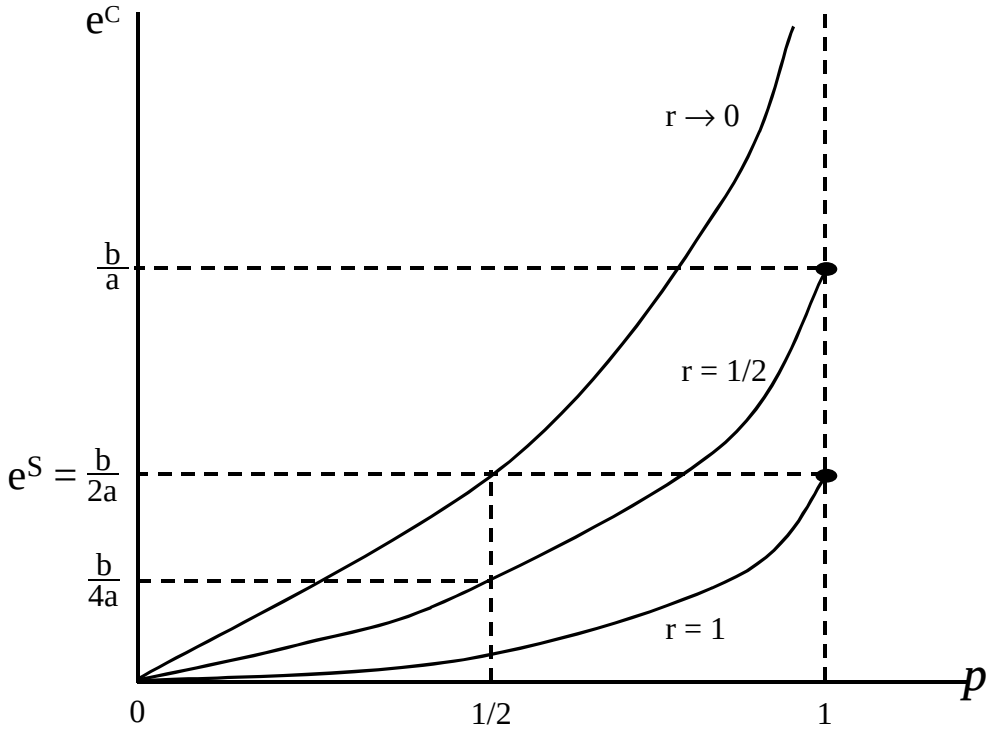

Figure 1. *Optimal effort curves under traditional customary theory*

$e^C = e^S$ can only occur when $p = 1$.

As the discount rate falls to, say $r = ½$, the optimal effort curve shifts upward. In this case, in order for the private optimum to coincide with the social optimum, a lower probability of becoming a beneficiary of the emerging custom is required. In figure 1, it is easy to see the tradeoff between the various parameters of our customary law problem under efficiency. For any given effort level, lower discount rates r necessitate lower probabilities p to achieve efficiency. For example, the intersection of the $r = ½$ optimal effort curve and the $e^S = \frac{b}{2a}$ line is found at the left of the intersection of other effort curves corresponding to higher discount rates. As the discount rate approaches zero ($r \to 0$), the optimal effort curve approaches the highest curve shown. Hence, as $r \to 0$,

the required probability of being the beneficiary of the custom in future periods approaches $p = \frac{1}{2}$ for a social optimum.

Note that earlier, as illustrated in (7), we have shown that in order for the private and the social level of effort to coincide, $p = \frac{1}{2}(1+r)$ must hold. The optimal effort curves shown in Figure 1 are consistent with this condition. From the figure, it can be seen that in order for the party to undertake the socially optimal level of effort, an increase in the discount rate must be accompanied by an increase in the probability of becoming the beneficiary of the custom in future time periods. This is intuitive. Since discounting the future more heavily indicates caring for future benefits less and given the fact that participation to the customary practice imposes a present cost for the expectation of a future benefit, a socially optimal effort level can be privately rational only if the acting party has a more than a fair chance of being on the receiving side of the customary practice in the future.

3 The Limits of Customary Law: Multilateral Customs, Uncertainty and Delayed Recognition

In this section, we extend the above analysis to the more general case of multilateral custom. We consider the impact of uncertainty and time lags in the process of formation and recognition of customary law. We verify how the previously discussed participation and incentive constraints are affected by the presence of such conditions. These extensions acquire particular importance when the circumstantial and normative interests of the parties are not perfectly aligned. This analysis will thus help identify the limits of traditional customary processes in real-life conditions.

The analysis unveils situations in which the parties are unable to generate Pareto superior customs through their own practice. In section 4, we use these findings to investigate if the adoption of alternative doctrines of customary law formation can mitigate the shortcomings of traditional customary law processes.

3.1 Multilateral Custom and the Problem of Large Number Participation

In the previous section, we considered the stylized case in which the parties are always involved in the process of custom formation. In our illustration, we assumed that the parties would always be involved, in one role or the other (e.g., as victims or rescuers), in future time periods. This is an appropriate and realistic assumption for the case of bilateral customs, but one that would hardly be applicable to the case of multilateral customs.

There are reasons to extend our basic model to situations where the participants to a customary practice (e.g., those in need of rescue and their rescuers, in our example) are randomly drawn from a larger population. Not every individual is actively or passively involved in the custom-generating practice. At each time, a positive number of non-participants observe others' activities without participating. We can think of the non-participating individuals as acquiescing spectators of an emerging custom.

Consider the case in which the probability of being a participant in a rescue venture depends on the number of parties available. Let N ($N \geq 2$) be the number of parties involved. Then there is a $1/N$ probability that the party will be the rescuer, and likewise there is a probability of $1/N$ that the party will need rescue. This means that there is a residual probability of $1-2/N$ that the party is just a bystander in each period in the future. Then the problem of the party becomes:

$$\max_e \; P = -ae^2 + \frac{1}{r}\cdot\frac{1}{N}(pbe-(1-p)ae^2)\,.$$

Note that N plays a similar role to r in the party's optimization problem. Hence, similar to the comparative static results $\frac{\partial e^C}{\partial r} < 0$ and $\frac{\partial P^C}{\partial r} < 0$ found before, $\frac{\partial e^C}{\partial N} < 0$ and $\frac{\partial P^C}{\partial N} < 0$ now also hold. When the number of potential participants increases, the probability of a party's involvement decreases. The decrease in the probability of involvement leads to a decrease in the optimal level of effort expended by the party. Likewise, as more participants become involved, it becomes harder to satisfy the participation constraint, and it is less likely for the party to take part in the rescue venture.

Both results are related to the fact that the choice of initial participation imposes a present and sure cost on the parties, while the probability of future involvement with the emerging custom, and the resulting net benefits, may decrease with the number of participants.

These results are consistent with the empirical findings of sociologists and anthropologists according to which close-knit environments and small communities of players provide the most fertile environments for the emergence of efficient customs (Ulmann-Margalit, 1977; Parisi, 1998; Ellickson, 2001). This result further supports Goldsmith and Posner's (1999 and 2000) skepticism about reciprocity explanations of international cooperation involving more than two states. Finally, these results have important implications for the adjudication of customary norms. Given the greater ease with which efficient rules may emerge in such environments, courts should give full attention and enforcement to customs emerged in small or close-knit communities. Local, regional and special customs should likewise enjoy as much recognition, or even greater recognition, than the more general and widespread customary practices.

3.2 Introducing Uncertainty in the Formation of Custom

Thus far, our model of custom formation assumed that later participants to the custom always followed the initial practice with reciprocal behavior. This allowed us to isolate the effects of strategic participation and effort choices of the parties from the effects of uncertainty concerning the participation and future compliance of other parties. In real-life settings, however, initial participants to a customary practice have no guarantee that their action will actually lead to a binding custom. Thus, an initial effort may not always be met with reciprocity, which may undermine the motivation of the initial action, frustrating the expectation of reciprocal behavior from others. In our working example, if the potential rescuer has no assurance that his effort will be met with like behavior when fortunes are reversed, his incentives to offer voluntary rescue may be compromised.

Here, we consider the conditions under which optimal practices will emerge when there is uncertainty as to whether a binding rule of custom will emerge from the parties'

initial efforts (i.e., the initial participants have no assurance that reciprocal customary practices will be followed by others). We do so by extending our basic model to include the possibility of uncertainty in custom formation. In particular, we assume a probability b $(0 < b < 1)$ that in the future others will follow the practice undertaken by the party in question. The private optimization problem then is adjusted accordingly:

$$\max_{e} P = -ae^2 + \frac{1}{r}(bpbe - (1-p)ae^2).$$

Since the probability b plays a role similar to that of b in the optimization problem, the comparative static results are also similar: $\frac{\partial e^C}{\partial b} > 0$ and $\frac{\partial P^C}{\partial b} > 0$ hold. As intuition suggests, when the parties have higher expectations that their behavior will successfully consolidate into a binding custom, they will be more likely to participate in the practice and their initial action will be characterized by higher effort level.[17] Likewise, as the probability of reciprocal customary behavior increases, higher efforts will likely characterize the behavior of the initial participants.

3.3 Introducing Time Lags in the Formation and Recognition of Custom

In this last extension of our basic customary law model, we consider the effects of time lags in the process of emergence and recognition of the custom. In our basic model, time lags and delays in the recognition of custom affect the time in which the initial participants are able to capture the benefit of the custom, when roles are reversed. The delays can be determined by the type of practice, such as events of rare occurrence (e.g., a rescue in the outer space or the high seas), or action in the legal system (e.g., some legal systems require a long-standing practice of 20 or 30 years before the usage is recognized and enforced as a binging customary rule). Let T be the number of periods after the initial action before the practice consolidates into a binding custom and reciprocal benefits can be expected. From period T onward, the parties will act under a

[17] Note that opposite results would hold if the parties engaged in the initial practice in the pursuit of their circumstantial interest, rather than their normative interest. In that case, a lower probability that the practice consolidates in a custom would facilitate the initial participation, since the parties could capture the full benefit from participation without fearing the perpetual effect of such a custom in the future.

reciprocally binding rule of custom, such that one party may obtain the benefit of the rule or face the burdens of such rule, with probabilities p and (1 - p), respectively. In this case, the present discounted value of the future expected payoff is given by:

$$\sum_{t=0}^{\infty} \frac{1}{(1+r)^{t+T}} (pbe - (1-p)ae^2) = \frac{(pbe - (1-p)ae^2)}{r(1+r)^{T-1}}$$

Thus, the problem confronting the party becomes:

$$\max_{e} \; -ae^2 + \frac{(pbe - (1-p)ae^2)}{r(1+r)^{T-1}}$$

Comparing the current problem with the basic problem formulated in (3), r is replaced by $r(1+r)^{T-1}$. From the basic model, we know that $\frac{\partial e^C}{\partial (r(1+r)^{T-1})} < 0$ is true. Since $\frac{\partial r(1+r)^{T-1}}{\partial T} > 0$, we now have $\frac{\partial e^C}{\partial T} < 0$. That is, the longer the delay in the process of formation or recognition of the custom, the lower will be the level of effort rationally exerted by the initial participants. The presence of delays and time lags in the formation of the custom also affects the participation constraint. From the fact that $\frac{\partial P^C}{\partial (r(1+r)^{T-1})} < 0$, we have $\frac{\partial P^C}{\partial T} < 0$. This implies that some practices that would have successfully evolved in the normal case would not be undertaken, if the effects were delayed. In sum, when parties have a positive time preference and their circumstantial and normative interests are not aligned, delays in the formation and recognition of the custom may have negative participation and incentive effects. The above results further suggest that customary settings that entail infrequent parties' actions should require a lower number of observations, and thus a shorter waiting period, before the practice is allowed to consolidate into a binding rule. Given the infrequency of action and delay in custom formation, the parties would otherwise heavily discount the benefits of future applications of the custom. Such discounting would negatively affect both the participation and the incentives of the parties.

4. Belief and Action in Custom Formation: The Relevance of Timing and Articulation

In Section 3 we have shown that, in all situations where the circumstantial and normative interests of the parties are not aligned, the following factors may have negative effects on the parties' participation and incentives: (a) increases in the number of participants, (b) uncertainty in the future development of the custom, and (c) delays in the formation and recognition of the custom. These findings have important implications for the assessment of alternative mechanisms of customary law formation. In this section, we examine the role of alternative processes of customary law formation in mitigating the above shortcomings of the traditional approach.

We proceed considering an important variation in the process of custom formation, which we refer to as "articulation theory." This variant of traditional customary law processes allows parties to express their consensus over potential rules prior to the time of their action through practice. Custom emerges when parties undertake action consistent with the expression of a belief contained in their prior or concurrent articulations. We model the process of custom formation under such alternative doctrines and identify the respective limits and advantages of the alternative frameworks of custom formation in different environments.

4.1 Normative Interests and Circumstantial Interests in the Formation of Custom: The Role of Articulation

Notable scholars have considered the conditions under which principles of justice can emerge spontaneously through the voluntary interaction and exchange of individual members of a group. As in a contractarian setting, the reality of customary law formation relies on a voluntary process through which members of a community develop rules that govern their social interaction by voluntarily adhering to emerging behavioral standards.[18] As discussed above, this process of custom formation becomes problematic

[18] In this setting, Harsanyi (1955) suggests that optimal social norms are those that would emerge through the interaction of individual actors in a social setting with impersonal preferences. The impersonality

when the circumstantial and normative interests of the parties are not aligned. Legal theorists and practitioners have addressed this issue in the context of customary law, considering the requirement of *opinio iuris*.[19] Legal theorists have proposed to look past the notion of *opinio iuris* concentrating on the element of "articulation." Articulation theories capture two important features of customary law: (a) customary law is voluntary in nature; and (b) customary law is dynamic. According to these theories, in the process of ascertaining the qualitative element of *opinio iuris*, the parties' statements and expressions of belief should be attentively considered. Individuals and states articulate desirable norms as a way to signal that they intend to follow and be bound by such rules. In this way, articulation theories remove the guessing process from the identification of *opinio iuris* and allow expressions of belief to be manifested before or in conjunction with customary action.

Consistent with the predicament of the economic models, articulation theories suggest that greater weight should be given to beliefs that have been expressed prior to the emergence of a conflict.[20] When parties face a tension between their circumstantial and normative interests, this would imply that relevance should be given to statements of belief (i.e., articulations) expressed by the parties, even when articulations are not accompanied by actual practice.

Before the contingent circumstances of the matter are known to the parties, states and individuals articulate rules that are consistent with their *ex ante* normative interests.

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requirement for individual preferences is satisfied if the decision makers have an equal chance of finding themselves in any one of the initial social positions and they rationally choose a set of rules to maximize their expected welfare. Rawls (1971) employs Harsanyi's model of stochastic ignorance in his theory of justice. However, the Rawlsian "veil of ignorance" introduces an element of risk aversion in the choice between alternative states of the world, thus altering the outcome achievable under Harsanyi's original model, with a bias toward equal distribution (i.e., with results that approximate the Nash criterion of social welfare). Further analysis of the spontaneous formation of norms and principles of morality can be found in Sen (1979); Ullmann-Margalit (1977); and Gauthier (1986).

[19] In attempting to solve one of the problems associated with the notion of *opinio iuris*, namely the troublesome problem of circularity, legal scholars (notably, D'Amato, 1971) have considered the crucial issue of timing of belief and action in the formation of customary rules. The traditional approach emphasizes the awkward notion that individuals must believe that a practice is already law before it can become law. This approach basically requires the existence of a mistake for the emergence of a custom: the belief that an undertaken practice was required by law, when instead, it was not. Obviously, this approach has its flaws. Placing such reliance on systematic mistakes, the theory fails to explain how customary rules can emerge and evolve over time in cases where individuals have full knowledge of the state of the law.

[20] Here, it is interesting to point out a strong similarity between the legal and the economic models. Articulations that are made prior to the unveiling of conflicting contingencies can be analogized to rules chosen under a Harsanyian veil of uncertainty.

They have incentives to articulate and endorse rules that maximize their expected welfare. This rule may not necessarily correspond to the *ex post* circumstantial interest of the parties in the specific case and may fail to maximize their actual payoff when roles and circumstances are unveiled to the parties. Thus, timing of relevant action is important to both participation and effort incentives. To illustrate the point, it is useful to consider again our working example of mutual rescue. Given some degree of uncertainty as to the future course of events, the parties' normative interests are easily aligned. If a rule of mutual rescue maximizes the expected welfare of the community at large, parties are likely to endorse such a rule. If asked in abstract as to whether their society should be bound by a norm of mutual rescue, they would thus likely agree to be bound.

As previously seen in Section 3, this may not necessarily be the case under traditional processes of customary law formation. When individuals and states have an opportunity to manifest their belief only in conjunction with their action, participation and incentive constraints may be undermined. At the time of action, parties have biased strategic incentives and this may fail to induce optimal participation and efficient incentives under the circumstances. More generally, once the future is disclosed to them, parties will tend to articulate rules that best fulfill their circumstantial interests and welfare, rather than the normative interest and expected welfare to be derived from an uncertain future. In our working example, those in need of rescue may reclaim too much effort; those called to provide it, may undersupply it. In the absence of a previously agreed standard of conduct, mutual assistance is likely to be withheld or undersupplied. In this situation, if adjudicators were asked to choose between the behavioral standards articulated *ex ante* by the potential participants and the standards advocated *ex post* by the parties, they should favor the adoption and enforcement of the *ex ante* standards of conduct.

4.2 A Model of Custom Formation with Articulation

In this section, we will build on the above intuition to consider the incentive properties of customary law processes that rely on *ex ante* articulations. We consider a setting similar to that considered in Section 2, where the parties do not have to actively

engage in the customary practice in the initial time period. In period 0, the parties are allowed to choose a rule by means of articulation. In our working example, imagine that the parties are allowed to express their beliefs on the norm of rescue before their respective roles are unveiled. The future horizon for the parties is unchanged. Like before, in future periods, we assume that the parties will benefit from the rule with probability p and are burdened by such rule with probability $1-p$. Assuming a discount rate r, the problem confronting the party is to maximize the present discounted value of the total expected payoff:

$$\max_{e} \tilde{P} = \frac{1}{r}(pbe-(1-p)ae^2) \qquad (8)$$

We can now compare this problem to the basic customary law problem considered in (3). The objective of the current maximization has one less negative term, since the endorsement of a hypothetical rule by means of articulation requires no practice or effort expenditure. The optimal level of effort e^A is then given by the following:

$$e^A = \frac{pb}{2a(1-p)}. \qquad (9)$$

Substituting the optimal value of e^A into the objective function $\tilde{P}$ gives the following maximal payoff P^A:

$$P^A \equiv \tilde{P}(e^A) = \frac{p^2b^2}{4ar(1-p)} \quad . \qquad (10)$$

4.2.1 Participation Constraint

Articulation processes allow parties to pursue their normative interests avoiding any potential conflict with their circumstantial interests. In a traditional customary law case, in order for the participation constraint to be satisfied, a payoff $P^C \geq k$ had to be expected from the participation to the customary practice. Participation constraint in the articulation case is also checked against a fixed number, *k*. Comparative statics show that the participation constraint $P^A \geq k$ is more or less likely to be satisfied as the following

parameters change: $\frac{\partial P^A}{\partial a} < 0$, $\frac{\partial P^A}{\partial b} > 0$, $\frac{\partial P^A}{\partial r} < 0$, and $\frac{\partial P^A}{\partial p} > 0$. That is, *ceteris paribus*, the participation constraint is less likely to be satisfied when it is more costly to undertake the activity, as signified by a greater *a*, or the party's discount rate, *r*, are higher. On the other hand, the participation constraint is more likely to be satisfied when the benefits from reciprocal cooperation, *b*, or the probability of being on the benefiting side in the future, *p*, are higher.

4.2.2 Incentive Problem

From the optimal level of effort under articulation given in (9), we have the following results: $\frac{\partial e^A}{\partial a} < 0$, $\frac{\partial e^A}{\partial b} > 0$, $\frac{\partial e^A}{\partial r} = 0$, and $\frac{\partial e^A}{\partial p} > 0$.[21] Comparing these sensitivity results with those obtained in the case of traditional customary law, an important qualitative difference is revealed. Under articulation theory, the parties' discount rate has no impact on the optimal level of effort. However, we have previously learned that, even under articulation theory, the discount rate does have an impact on the participation constraint. The higher the discount rate, the less likely it is for the participation constraint to be satisfied, and the less likely it is for the party to join the custom-generating articulation (in our working example, it will be less likely that the party will advocate a rule of rescue in contemplation of future contingencies). The interesting point here is that, even though higher discount rates may undermine participation, if participation is fulfilled, optimal effort levels will be chosen and optimal rules will be advocated. This is a substantial improvement over traditional customary law processes. The improvement is due to the fact that articulation processes, unlike traditional processes of custom formation, eliminate the incentives to understate the

[21] Specifically, the comparative statics are: $\frac{\partial e^A}{\partial a} = \frac{-pb}{2a^2(1-p)} < 0$, $\frac{\partial e^A}{\partial b} = \frac{p}{2a(1-p)} > 0$, $\frac{\partial e^A}{\partial r} = 0$, and $\frac{\partial e^A}{\partial p} = \frac{b}{2a(1-p)^2} > 0$.

parties' true normative interests by letting parties commit to a customary rule before the specific circumstantial interests are unveiled.

4.3 Private versus Socially Optimal Articulation

Comparing the privately optimal effort e^A identified in (9) with the socially optimal level e^S in (2), it is readily seen that the two can be identical only if the probability of being a beneficiary of the emerging rule is $p = \frac{1}{2}$. This means that homogeneous parties or unbiased role-reversibility are important prerequisites of processes of custom formation, even under articulation theories.

Figure 2 shows the optimal effort curve under articulation: $e^A = \frac{pb}{2a(1-p)}$ as a function of p. Note that as $p \to 1$, $e^A \to \infty$. As the probability of becoming a beneficiary of the rule approaches certainty, the party articulates a larger cooperation effort. Figure 2 also shows that when probabilities are fairly distributed, $p = ½$, the privately optimal effort e^A equals the social optimum, e^S. In our working example, when the probability of being rescued equals the probability of becoming a rescuer in the future, the two parties will face incentives to articulate efficient rescue rules. This is so because the parties will give equal weights to the expected costs and benefits of future rescue missions. This is not so when the parties face asymmetric probabilities of being rescuers or victims. With asymmetry, the private and social incentives diverge and the resulting articulations will be affected by the diverging interests of the parties.

The lack of alignment between private and social incentives is due to the fact that a privately optimal effort level is obtained by balancing the expected private marginal cost and benefits. Such privately optimal balancing takes into account the individual probabilities of receiving a benefit or being burdened by a cost. For a social optimum, no such discounting should be made. The social marginal cost and marginal benefit for the parties should be balanced, but no weighing would enter the calculation or a social optimum, since the *ex post* distribution of costs and burdens between the parties is

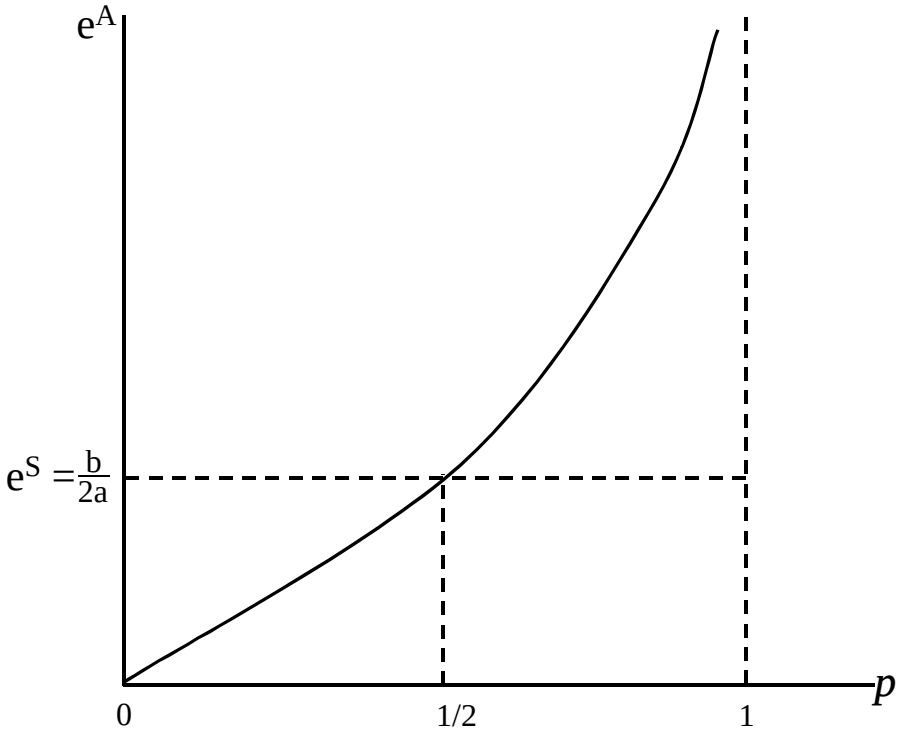

Figure 2. *Optimal effort curve under articulation theories*

irrelevant. Thus, the private optimum and the social optimum will only coincide when the probabilities are uniform for all players.

4.4 Articulation and the New Boundaries of Customary Law

We now consider the different attributes of the processes of custom formation, evaluating the ability of articulation processes of custom formation to correct the shortcomings identified in Section 3 with respect to traditional customary processes. We shall proceed to inquire which formative process is more likely to facilitate the formation of custom. We do so by first comparing the effect of articulation processes on the participation constraint and then consider the impact on the parties' incentives.

We compare the participation constraint under articulation theories $P^A = \frac{p^2 b^2}{4ar(1-p)} \geq k$, as implied by (10), and the participation constraint under

customary law $P^C = \frac{p^2 b^2}{4ar(r+1-p)} \geq k$, as implied by (5). We see that the denominator of P^A is smaller than the denominator of P^C, since the former has one less term than the latter. Hence P^A is larger than P^C. This implies that the participation constraint is more easily satisfied in the articulation case than in the traditional customary law case. Allowing potential participants to announce *ex ante* their participation to the emerging custom and to articulate the level of effort that they consider appropriate and desirable for such activity thus facilitates the formation of customary law.

A similar inquiry can be undertaken with respect to the content of the emerging custom, as symbolized by the chosen effort level. We can do so by comparing the privately optimal effort that parties would advocate under articulation theories, as derived in (9), $e^A = \frac{pb}{2a(1-p)}$, with the privately optimal level of effort chosen under customary law, as derived in (4), $e^C = \frac{pb}{2a(r+1-p)}$. By inspection, we see that the denominator of e^A is smaller than the denominator of e^C since $r > 0$. Hence $e^A > e^C$. That is, the optimal effort that parties would rationally choose under articulation is greater than the effort that those same parties would choose under traditional customary law processes.

4.5 Articulation and the Problem of Multilateral Custom

As before, we extend the basic articulation model to consider situations where the participants to a customary practice (e.g., those in need of rescue and their rescuers, in our example) are randomly drawn from a larger population. Also in this case, we assume that not every individual is actively or passively involved in the custom-generating practice. At each time period, a positive number of non-participants observe others' activities without participating: the probability of being an active participant depends on the number of parties involved. In our illustration, imagine that the probability of being a participant in a rescue venture depends on the number of parties N ($N \geq 2$) available. In particular, in each period, let the probability of being either a rescuer or a rescued be

$1/N$ and the probability that the party is a bystander be $1-2/N$. Then the private problem becomes:

$$\max_e \tilde{P} = \frac{1}{r} \cdot \frac{1}{N}(pbe - (1-p)ae^2).$$

Since N plays a similar role to r in the party's optimization problem, the comparative static results are qualitatively similar to $\frac{\partial e^A}{\partial r}$ and $\frac{\partial P^A}{\partial r}$. That is, we have $\frac{\partial e^A}{\partial N} = 0$ and $\frac{\partial P^A}{\partial N} < 0$.

Comparing these results with those obtained in the case of traditional customary law, we note an important difference. Under articulation, a change in the number of potential participants has no impact on the optimal level of effort expended by a party. An increase in the number of parties, however, reduces the probability of a party's involvement in the articulation process (in our example, it would make it less likely for the party to articulate the rescue rule). However, even though an increase in the number of parties may render participation less likely, once participation occurs, the parties will undertake optimal effort levels and advocate optimal rules. This is a substantial improvement over traditional customary law processes that, as seen above, are affected by pervasive strategic problems in multilateral settings.

4.6 Uncertainty and Articulation in the Formation of Custom

In Section 3, we considered the conditions under which optimal practices would emerge when there is uncertainty as to whether a binding rule of custom will evolve from the parties' initial efforts (i.e., participants have no assurance that reciprocation by others will follow their articulation and subsequent customary practice). We now consider the effect of such uncertainty in the case of articulation processes. As in the customary law case, we extend our basic model by assuming that others will follow the practice in question with a probability b $(0 < b < 1)$ in the future. The problem of the party thus becomes:

$$\max_e \ \tilde{P} = \frac{1}{r}(bpbe - (1-p)ae^2).$$

Note that the probability b plays a role similar to that of b in the private optimization problem, in that it amounts to a multiplier of the future benefits. Hence the comparative static result for b is qualitatively similar to the comparative static result for b. Hence, $\frac{\partial e^A}{\partial b} > 0$ and $\frac{\partial P^A}{\partial b} > 0$. An increase in the probability of custom formation b increases the party's willingness to expend effort and it has a positive impact on the willingness of the party to advocate customary norms by means of articulation. The probability of custom formation thus affects both participation and incentives under articulation.

4.7 Time Lags and the Formation of Custom through Articulation

The last extension of our basic articulation model considers the effects of time lags in the process of emergence and recognition of the custom. In Section 3, we have observed that time lags and delays in the recognition of custom affect the time in which the initial participants are able to capture the benefit of the custom, when roles are reversed. Such delay can undermine both the participation and the effort incentives in the traditional customary law case. Thus, if custom aims at regulating events of rare occurrence, traditional customary law processes may be ineffective. Likewise, if legal systems delay the process of custom formation by requiring the finding of long-standing practices, participation and effort incentives may be undermined.

We shall now consider whether the same problems occur under articulation processes of custom formation. Let T be the number of periods after which the prior articulation consolidates into a binding custom and reciprocal benefits can be expected. In this case, the private optimization problem becomes

$$\max_e \ \frac{(pbe - (1-p)ae^2)}{r(1+r)^{T-1}}.$$

Comparing this problem with the basic articulation case without time lags, as formulated in (8), we can see that r is replaced by $r(1+r)^{T-1}$. From the basic model, we know that

$\frac{\partial e^A}{\partial (r(1+r)^{T-1})} = 0$ and $\frac{\partial P^A}{\partial (r(1+r)^{T-1})} < 0$ hold. Since $\frac{\partial r(1+r)^{T-1}}{\partial T} > 0$, by chain rule we have $\frac{\partial e^A}{\partial T} = 0$ and $\frac{\partial P^A}{\partial T} < 0$. Hence the presence of time lags negatively affects the participation choice under articulation theories as well as traditional processes of custom formation: the longer the delay before any enforcement of the articulated rule takes place, the less likely that the party will actively engage in the articulation process. However, this delay has no impact on the qualitative standards advocated by the parties and the resulting rules of custom. These results can be explained by considering that delays in the implementation of the rule decrease the present discounted value of the future payoff, thereby weakening the incentives to participate in the articulation venture. On the other hand, delays in future events do not alter the balance between expected benefit and expected cost in the future. Consequently, if the participation constraint is fulfilled, there is no reason for the party to alter his choice of optimal effort no matter how long the delay is. Also in this case, articulation processes of custom formation improve upon the traditional processes with respect to the parties' incentives and the resulting qualitative content of the emerging custom.[22]

5. Conclusions

In this paper we developed a model of custom formation and identified some of the strengths and weaknesses of customary law formation processes. Customary law is in many respects an effective source of law that generates rules on the basis of the revealed choices of the participating parties. Some settings are more congenial than others to the evolution of customary rules. We have identified some of the conditions that undermine the effectiveness of customary law. Among such conditions, the following have been shown to have negative effect on the parties' participation and incentives: (a) increases in

[22] This can be easily seen comparing the result $\frac{\partial e^A}{\partial T} = 0$ with those obtained for the case of traditional customary processes where $\frac{\partial e^C}{\partial T} < 0$.

the number of participants, (b) uncertainty in the future development of the custom, and (c) delays in the formation and recognition of the custom.

We extended our analysis to model articulation doctrines. According to these doctrines, custom emerges when parties formulate like-minded articulations prior to or in conjunction with customary practice. Our analysis identified the potential benefits and residual limitations of this alternative mechanism of custom formation. Most notably, customary rules would more easily emerge if prior articulation were made possible. Likewise, articulation processes of custom formation, while still leaving room for the emergence of sub-optimal customs under asymmetric settings, always improves the effort incentives for the participating parties, compared to traditional processes.

These findings have important policy implications for the design of optimal mechanisms of customary law formation, revealing the respective advantages and limits of the alternative regimes in different environments. Further work on this subject should extend this analysis to persistent and subsequent objector doctrines and other principles that govern the formation of customary law, in order to identify the best rules to foster efficient evolution of custom.

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