

Statute Law or Case Law?*

LUCA ANDERLINI
(Georgetown University)

LEONARDO FELLI
(London School of Economics)

ALESSANDRO RIBONI
(Université de Montréal)

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Abstract. We embed a simple contracting model with ex-ante investments in which there is scope for Court intervention in a full-blown open-ended dynamic setting.

The underlying preferences of both Courts and contracting parties are fully forward looking and unbiased. Our point of departure is instead the observation that when Courts intervene in a contractual relationship they obviously do so at the *ex-post* stage. This introduces a natural tension between actual Court behavior and ex-ante optimal Court decisions.

In a Case Law regime each Court is tempted to behave myopically because, ex-post, this affords current extra gains from trade. This temptation is traded off against the effect of its ruling, as a precedent, on *future* ones. We model the Statute Law regime in an extreme way: no discretion is left to the Courts which behave according to fixed rules. This solves the time-inconsistency problem afflicting the Case Law Courts, but is costly because of its lack of flexibility.

We find that when the nature of the environment changes sufficiently often through time the Case Law regime is superior, while when the environment does not change very often the Statute Law regime dominates. Overall, our findings support the view that the Case Law regime is superior in fields in which innovation, and hence change, is central (e.g. finance), while the Codified Law regime is superior in more slow-changing ones (e.g. inheritance law).

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ADDRESS FOR CORRESPONDENCE: Luca Anderlini, Georgetown University, 37th and O Streets NW, Washington DC, USA. 1a2@georgetown.edu

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1. Introduction

1.1. Motivation

Law never is, but is always about to be. It is realized only when embodied in a judgment, and in being realized, expires. There are no such things as rules or principles: there are only isolated dooms. [...]

[...] *No doubt the ideal system, if it were attainable, would be a code at once so flexible and so minute, as to supply in advance for every conceivable situation the just and fitting rule. But life is too complex to bring the attainment of this ideal within the compass of human powers. — Benjamin Cardozo (1921).*

At face value, US Supreme Court Justice Cardozo is a lot wiser than Italian legislators in the following attempt to prescribe rules well beyond the powers of their “compass.”

If the birth takes place during a railway trip, the declaration must be rendered to the railroad officer responsible for the train, who will draw a transcript of verbal declarations, as prescribed for birth certificates. Said railroad officer will hand over the transcript to the head of the railroad station where the train next stops. The head of such station will transmit the documents to the local registrar’s office to be appropriately recorded. — Law of the Republic of Italy (2000)¹

Even abstracting from such misguided attempts to fine-tune legislation, a key question remains. Is the pragmatism of Case Law simply always superior to the rigidity of Statute Law? Are there universes in which Statute Law is instead superior to Case Law?

After all Statute Law was *the* prevailing system throughout a substantial part of organized

¹This the text of Article 40 of the regulations for registrar’s offices, issued as Decree Number 393 of November 3rd 2000 of the President of the Republic of Italy. Regulations being issued to ensure the streamlining of procedures, as prescribed by Article 2, comma 12, of Law Number 15 of May 1997 of the Republic of Italy. Translation by the authors.

The original Italian text is: “Se la nascita avviene durante un viaggio per ferrovia, la dichiarazione deve essere fatta al responsabile del convoglio che redige un processo verbale con le dichiarazioni prescritte per gli atti di nascita e lo consegna al capo della stazione nella quale si effettua la prima fermata del convoglio. Il capo della stazione lo trasmette all’ufficiale dello stato civile del luogo, per la trascrizione.” The original reference in Italian Law is: “Articolo 40, Decreto del Presidente della Repubblica 3 Novembre 2000 n. 396. Regolamento per la revisione e la semplificazione dell’ordinamento dello stato civile, a norma dell’articolo 2, comma 12, della legge 15 maggio 1997, n. 127.” See, for instance, <http://www.normeinrete.it/>

human societies for many centuries after 529 AD.² Is it then that the ascent of Case Law is like a scientific discovery? It just was not known before the 11th or 12th century,³ and those who discovered it and started using it became unambiguously better off; just like, say, penicillin after 1929. Once one poses the question in these terms, surely the unambiguous dominance view seems too simplistic to be final.

Our goal here is to build a simple stylized model in which, depending on the value of some significant parameters, which can be interpreted as embodying the speed of social and/or technological change, Case Law sometimes performs better than Statute Law while the reverse can also be true. As a byproduct, our analysis also affords us some insight into the *dynamics* of precedents in a Case Law regime.

There does not seem to be a general consensus as to whether the distinction we analyze here between Statute Law and Case Law corresponds in any general way to the distinction between Civil and Common Law, and we do not purport to resolve, or even fully describe, the debate. It is tempting, however, to draw a parallel in this way since at least historically Common Law relied on few, if any, statutes while Civil Law starts from a large body of statutes rooted in Roman Law dating back to the sixth century. In both Common and Civil Law the body of statutes has expanded dramatically through time (Calabresi, 1982), which makes the parallel problematic, and “pure” forms of either system hard to identify (Von Mehren, 1957, Ch. 16).⁴

However, we believe that our analysis has at least some *normative* implications concerning the distinction between Civil and Common Law. This is because the gaps left open by the Statute Book are filled by the Courts according to different criteria in the two systems. In a Common Law regime the gaps are filled utilizing the body of *applicable precedents*, which is what we model below. In a Civil Law system the gaps are filled by *interpretation* of the code. At least in the world we model here, the use of precedents stands out as a more (economically) efficient way to fill the gaps. Common Law *adapts* via the use of precedents, while Civil Law

²The “Corpus Juris Civilis,” almost universally regarded as the origin of Statute Law, was issued by the Byzantine Emperor Justinian I between 529 and 534 AD.

³The English system of Common Law (originally almost pure Case Law) is almost universally agreed to have become fully established between the beginning of the reign of William the Conqueror as King of England in 1066 and the end of the reign of Henry II of England in 1189.

⁴Hadfield (2007) systematically scrutinizes the key differences between Common and Civil Law systems. She then addresses the question of how these differences affect the “dynamic quality” of the Law. We prefer to stay with the safer distinction between Case and Statute Law, which suffices for the purposes of this paper.

changes little unless the Statute Book itself is changed. If one were designing Civil Law and Common Law from scratch, then it would be efficient to strive for more detailed legislation in the Civil Law than in the Common Law world. If this were the case, in this re-designed world, the distinction we make between Statute and Case Law *would* broadly correspond to the distinction between Civil and Common Law.

Before we move on, it is also important to mention a large and influential body of empirical literature known as “Law and Finance” which examines the relative performance of Common and Civil Law in Financial and related markets.⁵ We believe that our results lend support to the main finding — namely that Common Law dominates Civil Law in this fast-paced section of the economy. We return to this point in Section 5 which concludes the paper.

1.2. *Preview and Relation to the Literature*

We abstract completely from “judicial bias.” This is not because we do not subscribe to the “pragmatist” view of the judicial process that can be traced back to at least Cardozo (1921) and subsequently Posner (2003).⁶ It is mainly to make sure that our results can be clearly attributed to the source we focus on (rigidity versus time-inconsistency). Introducing judicial bias may well have ambiguous effects on welfare when Courts have more discretion,⁷ because it changes the incentives of the current Court to constrain future Courts via precedents.⁸

We also ignore the distinction between “lower” and “appellate” Courts. The efficiency rationale for the existence of an appeal system has received vigorous scrutiny in recent years (Daughety and Reinganum, 1999, 2000, Levy, 2005, Shavell, 1995, Spitzer and Talley, 2000, among others), but, again, its differential impact in the Case and Statute Law regimes is far from obvious both theoretically and empirically. As with judicial bias, we prefer to maximize the transparency of our results and leave the distinction out of the model. In our model,

⁵See for instance La Porta, Lopez-de-Silanes, and Shleifer (2005), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998, 1999, 2002), Lombardo and Pagano (1999, 2002).

⁶There is a flourishing literature on the effects (and remedies for) judicial bias interpreted in a broad sense that ranges from “idiosyncracies” in the judges’ preferences Bond (2004a), Gennaioli and Shleifer (2007), among others, to “corruption” of the Courts Ayres (1997), Bond (2004b), Legros and Newman (2002), among others.

⁷We use the word discretion in the standard sense that it has acquired in Economics. Legal scholars are often uneasy about the term. Another way to express the same concept would be to say that Case Law Courts exercise “flexibility.” Given that Courts in our model are always welfare-maximizers, it would be appropriate to say that, under Case Law, Courts exercise “flexibility with a view to commercial interest.” We are grateful to Ross Cranston for making us aware of this terminological issue.

⁸See again Gennaioli and Shleifer (2007).

under Case Law, *all* Courts have, in principle, the same ability to create precedents that affect future Courts. Clearly, in reality, appellate Courts differ from lower Courts in this respect. Nevertheless we proceed as we do in the belief that the general flavor of our results would survive in a richer model.⁹

Our interest is in the comparison of the regimes of Case and Statute Law in the *economic* sphere of course, particularly within the realm of what economists call Contract Theory. During the last two decades, since the seminal work of Grossman and Hart (1986) and Hart and Moore (1990), much energy has been devoted to the analysis of *ex-ante* contracting under an *incompleteness* constraint.¹⁰ The focus is on a situation in which *ex-ante* contracting is critical to the parties' incentives to undertake relationship-specific investments that enhance economic efficiency. The parties' ability to contract on the relevant variables is assumed to be incomplete. This has proved to be an extremely fertile ground to address a variety of issue of first-order economic importance.¹¹

We model both the Statute Law regime and the Case Law regime in a way that is designed to bring the differences into stark relief, more than capture the fact that the distinction between the two can often be subtle and hard to pinpoint precisely. Our model comprises a heterogeneous "pool" of *ex-ante* contracts; a draw from this pool materializes each period. Under Case Law, in each period a Court of Law can, in principle, decide to either *void* or *uphold* the parties' contract.¹² Our model is designed so that, from the point of view of *ex-ante* welfare, it is optimal to void certain contracts, while the remainder should be upheld.

Under Statute Law, *all* Courts are constrained to behave in the same way (by the relevant part of the "Statute Book"). Thus, under Statute Law, either *all* contracts are upheld, or they are *all* voided. Under Case Law, each Court may be either constrained by precedents

⁹For instance Gennaioli and Shleifer (2007) insist, realistically, that the Court that changes the relevant body of precedents is an appellate Court. Their appellate Courts are, by assumption, immune from the potential time-inconsistency problem we identify here. Provided that appellate Courts suffer at least to some extent from the same potential time-inconsistency problem as our lower Courts, the general flavor of our results would be unaffected by an explicit distinction between these two levels of judgement.

¹⁰See Kaplow and Shavell (2002a), Section 4, for a general discussion of incomplete contracts and enforcement.

¹¹To cite but a few contributions, this literature has shed light on vertical and lateral integration (Grossman and Hart, 1986), the allocation of ownership over physical assets (Hart and Moore, 1990), the allocation of authority (Aghion and Tirole, 1997) and power (Rajan and Zingales, 1998) in organizations.

¹²Note that we are therefore ruling out the possibility that the Court might *change* the *terms* of the contract, while enforcing some of its basic provisions. On this point, see Kaplow (2000) and Kaplow and Shavell (2002a).

(which evolve according to a dynamic process specified below) or unconstrained.¹³ In the latter case the Case Law Court has complete *discretion* to either void or uphold the parties contract.

Our point of departure is the observation that under Case Law, whenever a Court of Law exercises *discretion* it does so necessarily *ex-post*. It is hard to argue with the view that Courts (if at all) intervene *ex-post* in the parties' contractual relationship.¹⁴

In the class of contracting problems on which we focus, this has far-reaching implications for the behavior of Courts under Case Law. Under Case Law, when a Court exercises discretion on whether to void or uphold the parties' contract, the *ex-ante* incentives to invest no longer matter because the parties' investments and strategic decisions are *sunk*. This biases the Court's decision away from *ex-ante* efficiency (in our stylized model always towards enforcing the parties' contract). In short, under Case Law, because they exercise discretion (when they in fact do) *ex-post*, the Courts suffer from a *time-inconsistency* problem. If they just maximized the (ex-post) welfare of the *current* contracting parties, they would uphold those contracts that it is optimal to void *ex-ante*. Under Case Law, the Courts' decisions may suffer from *present-bias*.¹⁵

Under Case Law, the Courts' bias towards excessive upholding is mitigated, although not entirely resolved, by the *dynamics of precedents*. Each Court is tempted to uphold the parties' contract even when it should not do so. However, voiding the contract of the current contracting parties, via the dynamics of precedents, increases the probability that *future*

¹³In reality, of course, it is seldom the case that a Case Law Court is either completely constrained or completely unconstrained by precedents. Each case has many dimensions, and precedents can have more or less impact according to how "fitting" they are to the current case. We model this complex interaction in a simple way. With a certain probability existing precedents "apply," and with the complementary probability existing precedents simply "do not apply." We do not believe that the main flavor of our results would change in a richer model capturing more closely this complex interaction, although the latter obviously remains an important target for future research.

¹⁴In a pioneering paper, Glaeser and Shleifer (2002) compare Common Law (Independent Juries) and Civil Law (Bright Line Rules) in a static model. Ponzetto and Fernandez (2006) compare Case Law and Statute Law in a dynamic setting with a focus on the evolution of precedents and cross-country comparisons. Aside from a variety of modeling choices, the key difference between their work and ours is the fact that we concentrate on the potential time-inconsistency generated by *ex-post* Court intervention.

¹⁵The term "time-inconsistency" is a standard piece of modern economic jargon that goes back to at least Strotz (1956) and subsequently to the classic contributions of Phelps and Pollak (1968) and Kydland and Prescott (1977). It can be used whenever an *ex-ante* decision is potentially reversed *ex-post*. The term "present-bias" describes well the type of time-inconsistency that afflicts the Case Law Courts in our set-up. We use the two terms in a completely interchangeable way.

Courts will be *constrained* to do the same, thus raising ex-ante welfare. The decision of each Court to void or uphold is pinned down by the trade-off between an instantaneous gain from upholding, and a future gain, via precedent-setting, from voiding the parties' contract.

Our first main finding is that the time-inconsistency problem prevents the Case Law regime from reaching full efficiency. This, surprisingly, is true under very general conditions on the dynamics of precedents, and regardless of the rate at which the future is discounted.¹⁶ Eventually, under Case Law, the Courts *must* succumb to the present-bias. This is because they trade off a present increase in (ex-post) welfare, which does not shrink as time goes by, against a *marginal* effect on the decisions of future Courts. The latter eventually shrinks to be arbitrarily small. As a corollary, it is then relatively straightforward to argue that if the heterogeneity of the pool of cases that comes before the Courts is “sufficiently small,” then Statute Law will be superior to Case Law. The loss from a Statute Law fixed rule will eventually become smaller than the loss from the time-inconsistency problem under Case Law.

Our first main finding relies on a characterization of the evolution of precedents through time in a Case Law regime. At least since Cardozo (1921), the economic efficiency properties of this process have been the subject of intense scrutiny.¹⁷ In these writings, we often find a hypothesized “convergence” toward efficient rules under Case Law (Posner, 2004). How do our result stack against this hypothesis then? Roughly speaking, we find that, in our simple model, on the one hand the evolution of precedents *improves welfare through time*,¹⁸ but on the other does not yield efficient rules in the limit.

1.3. Overview

For ease of exposition, all proofs are in the Appendix. In the numbering of equations, Lemmas, and so on, a prefix of “A” indicates that the relevant item is in the Appendix.

¹⁶Provided it is positive.

¹⁷Gennaioli and Shleifer (2007) explicitly analyze how the process behaves differently when judges are allowed to “overrule” as opposed to when they are only allowed to “distinguish” relative to previous cases. The selection of efficient rules under Case Law, based on the self-selection of cases that are brought before Courts has been studied by Landes (1971), Priest (1977) and Rubin (1977) among others. More recently, Ben-Shahar (1999) has argued that flexibility may be detrimental in a Case Law regime on grounds entirely separate from our considerations here. In short, he argues that the anticipation of Court flexibility may give incentives to the parties (the “right-holders”) to over-invest in preventive (“anti-erosion”) measures in the contracts they write.

¹⁸This claim is made precise in Lemma A.1.

2. Time-Inconsistency: Three Leading Examples

Our point of departure is the observation that Courts examine the disputes brought before them at an *ex-post* stage. Many decisions will have been taken and much uncertainty will have been realized by the time a Court is asked to rule.

It is key to our results that the optimal decision for our benevolent Court *may* be different when evaluated *ex-ante*, or at the actual *ex-post* stage. It is also important that this is not always the case: the considerations that impact the *ex-ante* decision making it differ from the *ex-post* one may be unimportant and the *ex-post* optimal Court ruling is optimal when viewed from *ex-ante* as well.

There are many examples of spheres in which the potential time-inconsistency we work with occurs. Here, we briefly describe two of these that we think are both important and fit well our setup. In the Appendix, we report more extensively on a third example (Anderlini, Felli, and Postlewaite, 2006) that also fits the bill. This is also briefly described below.

Our first example is related to the “topsy-turvy” principle in corporate finance (see Tirole, 2005, Ch.16). Project requiring finance can be of, say, high or low quality (*ex-ante*) and can be hit or not by a liquidity crisis (*ex-post*). Socially, it is optimal to let only high quality projects be financed *ex-ante*. Lenders cannot observe project quality, nor can they distinguish at an *ex-post* stage whether the borrower’s state of distress is due to a low quality project or a liquidity problem.

Providing maximum protection to the lenders so that all projects in distress are liquidated achieves *ex-ante* selection in the sense that only high quality borrowers apply for funds. On the other hand, for projects of high quality, the social cost of re-deploying resources in a new activity after liquidation is high. Hence if only high quality projects are financed in the first place, *ex-post* it is optimal to lower lenders’ protection and allow debt-restructuring. This avoids the social loss from re-deploying resources away from high quality projects. The *ex-ante* and *ex-post* optimal Court decisions may differ.

To complete the example, we observe that in some instances allowing debt restructuring may be optimal both *ex-ante* and *ex-post*. This is the case, for instance, if all potential projects are of high quality (or if the proportion of low quality projects is sufficiently low).

Our second example concerns patents (Alessandro - we need citation here). As in the first cases, the specifics could take a variety of different forms, of which we only mention one.

Consider a Court that examines a patent infringement case. From an ex-ante perspective, as is standard, the optimal breadth of the patent will be determined taking into account the trade-off between the incentives to invest in R&D, and the social cost of monopoly power exercised by the patent owner. Ex-post, however, since the R&D investments are sunk, it is always socially optimal to rule in favor of the infringer and thus open the market to competition. So, again, the optimal decision for the Court may differ according to whether we look at the problem ex-ante or ex-post.¹⁹

The model in Anderlini, Felli, and Postlewaite (2006) (henceforth AFP) involves a buyer and a seller in a multiple-widget model with relationship-specific investment, asymmetric information and incomplete contracting.²⁰ In this world, it may be optimal for a Court to actively intervene in the parties' relationship and void some of the contracts that they may want to write. This is because without Court intervention inefficient pooling would obtain in equilibrium, and an ex-ante announcement by the Court that it will intervene will destroy the pooling equilibrium and hence raise welfare. On the other hand, once a contract has been written and the parties have agreed which widget to trade, the optimal Court decision at an ex-post stage is to let the contract stand so that the parties can in fact trade. While intervention is optimal ex-ante, the opposite is true ex-post.²¹ In what follows we use a numerical example of AFP to describe the static problem faced by an interventionist Court.

3. The Model

3.1. A Simple and a Rich Environment

As mentioned above, we here focus on a version of the model in AFP as the “contracting stage” of our dynamic environment mostly to fix ideas. The key features of the model used here are that Court intervention is beneficial in some cases and that *ex-post* the Court's incentives are *not* to intervene when it in fact should from the point of view of ex-ante

¹⁹As before, in some cases the optimal decision is the same. When R&D investment is unimportant the socially optimal breadth of the patent is zero. It is optimal both ex-ante and ex-post to rule in favor of the infringer.

²⁰As we mentioned before, this model is described in detail in the Appendix.

²¹As in the previous two examples, it is possible that the optimal decision both ex-ante and ex-post be that the Court should not intervene. In the Appendix, we argue that this is the case if the number of potential widgets is reduced.

welfare.²²

The backdrop for our analysis is a numerical version of the parametric model in AFP, with the added possibility that the environment may in fact be such that the Court should uphold all contracts.

We refer to the latter as the “simple” environment (with fewer widgets, denoted \mathcal{F}) and to the former as the “rich” environment (with more widgets, denoted \mathcal{M}). The environment is \mathcal{F} with probability $1 - \rho$ and is \mathcal{M} with probability ρ .

In both environments there is a buyer and a seller, both risk-neutral. The buyer has private information on the costs and values of the relevant widgets. He can be of a “high” type (denoted \mathcal{H}) or of a “low” type (denoted \mathcal{L}), with equal probability. The buyer knows his type at the time of contracting, while the seller does not. As standard, there is an ex-ante contracting stage, followed by an investment stage, followed by the ex-post trading stage. For simplicity, at the ex-ante contracting stage the buyer has all the bargaining power, while the seller has all the bargaining power ex-post.

In the simple environment there are two widgets, w_1 and w_2 . These two widgets are mutually exclusive because they require a widget- and relationship-specific investment of $I = 1$ on the part of the buyer. The buyer can only undertake *one* investment, and the cost and value of either widget without investment are zero. The cost and value of w_i ($i = 1, 2$) (net of the ex-ante investment) if the buyer’s type is $\tau \in \{\mathcal{L}, \mathcal{H}\}$ are denoted by c_i^τ and v_i^τ respectively. When investment takes place we take each of them to be as follows

	w_1	w_2
Type \mathcal{H}	$v_1^{\mathcal{H}} = 21, \quad c_1^{\mathcal{H}} = 1$	$v_2^{\mathcal{H}} = 25, \quad c_2^{\mathcal{H}} = 1$
Type \mathcal{L}	$v_1^{\mathcal{L}} = -1, \quad c_1^{\mathcal{L}} = 0$	$v_2^{\mathcal{L}} = 3, \quad c_2^{\mathcal{L}} = 1$

(1)

The rich environment is the same as the simple environment, save for the fact that a third widget w_3 is available. This widget is *not contractible* at the ex-ante stage, and does not require any investment.²³ Widget w_3 can be traded ex-post via a “spot” contract. Trading

²²The distinction between “forward looking” decisions (that maximize ex-ante welfare) and ones that focus on the parties currently before the Court can be found in some of the extant literature. Kaplow and Shavell (2002b) distinguish between “welfare” (ex-ante) and “fairness” (ex-post). Summers (1992) distinguishes between “goal reasons” (ex-ante) “rightness reasons” (ex-post).

²³In AFP we argue that the ex-ante non-contractibility of w_3 is without loss of generality for the class of

w_3 yields a positive surplus only if the buyer's type is \mathcal{L} . We take the cost and values of the three widgets in the rich environment to be

	w_1	w_2	w_3	
Type \mathcal{H}	$v_1^{\mathcal{H}} = 21, c_1^{\mathcal{H}} = 1$	$v_2^{\mathcal{H}} = 25, c_2^{\mathcal{H}} = 1$	$v_3^{\mathcal{H}} = 76, c_3^{\mathcal{H}} = 100$	(2)
Type \mathcal{L}	$v_1^{\mathcal{L}} = -1, c_1^{\mathcal{L}} = 0$	$v_2^{\mathcal{L}} = 3, c_2^{\mathcal{L}} = 1$	$v_3^{\mathcal{L}} = 65, c_3^{\mathcal{L}} = 3$	

The Court may intervene in the parties' contractual relationship by *voiding* contracts for either w_1 or w_2 .²⁴ Because of the hold-up problem generated by the the widget- and relationship-specific investment, if the Court voids contracts for either w_1 or w_2 or both, then the corresponding widget will not be traded.

In the simple environment, the Court has no welfare-enhancing role to play. When all contracts are enforced, in equilibrium both types of buyer invest in and trade w_2 . This yields full social efficiency. The total expected surplus from trading (net of investment) is 13.

Equilibria in the rich environment are fully characterized in AFP. When the Court enforces all contracts, there is a *unique* equilibrium, which involves inefficient pooling. Both types of buyer invest in and trade w_2 , and, since the buyer's type is not revealed, they also trade w_3 ex-post. The total expected surplus from trading (net of investment) in this case is 32. This outcome is clearly short of social efficiency since the type \mathcal{H} buyer trades w_3 , which generates *negative* surplus (-24).

If instead the Court intervenes and voids contracts for w_2 , the two types of buyer separate: behaving differently, they reveal their private information at the ex-ante contracting stage. The unique equilibrium outcome is that type \mathcal{H} buyer invests in and trades w_1 , but does not trade w_3 , while the type \mathcal{L} buyer does not invest in and does not trade either w_1 or w_2 ; he only trades w_3 ex-post. In this case the total expected surplus from trading (net of investment) is 41. While this outcome does not achieve full social efficiency it dominates the pooling outcome since it avoids the inefficient trade of w_3 from the part of the type \mathcal{H} buyer.²⁵

contracts we consider here.

²⁴In AFP we argue that not allowing the Court to void contracts for w_3 is without loss of generality.

²⁵Full social efficiency in the rich environment would entail that both types of buyer invest in and trade w_2 , while only the type \mathcal{L} buyer trades w_3 ex-post. The total expected surplus from trading (net of investment) in this case would be 44.

In AFP it is also shown that voiding contracts for w_2 is the best that the Court can do in the rich environment.²⁶

To sum up, if the environment is simple a welfare-maximizing Court can do no better than not intervening at all. Intuitively, Court intervention has no value since disclosure of the buyer's private information itself has no social value.

If instead the environment is rich then an active Court that intervenes and voids contracts for w_2 will enhance social welfare. By intervening, the Court induces the two types of buyer to *disclose information* at the ex-ante contracting stage. This disclosure has positive social value in the rich environment.

From now on, by a Court that *voids* (indicated by \mathcal{V}) the parties' contract we mean a Court that will void contracts for w_2 (and uphold all others), while by a Court that *upholds* (indicated by \mathcal{U}) the parties' contract we mean a Court that will uphold *all* contracts.

3.2. The Full Static Environment

Consider first the Case Law regime. In each period the environment is \mathcal{F} (simple) with probability $1 - \rho$ and is \mathcal{M} (rich) with probability ρ . Each contracting case (simple or rich) comes equipped with *its own* specific *legal characteristics*, which determine, as we will explain shortly, whether the current *body of precedents* apply.

We model the legal characteristics of the case as random variables $\ell_{\mathcal{F}}$ and $\ell_{\mathcal{M}}$, each uniformly distributed over $[0, 1]$, describing the legal characteristics of the case in the \mathcal{F} and \mathcal{M} environments respectively.²⁷ This allows us to specify the body of precedents in a particularly simple way.

The body of precedents \mathcal{J} is represented by four numbers in $[0, 1]$ so that $\mathcal{J} = (v_{\mathcal{F}}, u_{\mathcal{F}}, v_{\mathcal{M}}, u_{\mathcal{M}})$ with the restriction that $v_{\mathcal{F}} \leq u_{\mathcal{F}}$ and $v_{\mathcal{M}} \leq u_{\mathcal{M}}$. Once the nature of the environment (\mathcal{F} or \mathcal{M}) is determined, the legal characteristics of the case are determined ($\ell_{\mathcal{F}}$ or $\ell_{\mathcal{M}}$ as appropriate).

²⁶Recall that the Court can choose between voiding no contracts, voiding contracts for w_1 , voiding contracts for w_2 and voiding contracts for both w_1 and w_2 . In AFP the case of mixed strategies for the Court is also considered. We do not allow probabilistic Court choices in the present set-up.

²⁷The fact that we take the legal characteristics of a contracting case to be represented by a single-dimensional variable is obviously simplistic. While a richer model of this particular feature of a contract would be desirable, it is completely beyond the scope of our analysis here. The modeling route we follow is just the simplest one that will do the job in our set-up.

The interpretation of $\mathcal{J} = (v_{\mathcal{F}}, u_{\mathcal{F}}, v_{\mathcal{M}}, u_{\mathcal{M}})$ is straightforward. Once the legal characteristics of the case are determined, the body of precedents is seen to either apply or not apply and in which direction. Say that the environment is \mathcal{F} , then if $\ell_{\mathcal{F}} \leq v_{\mathcal{F}}$ the body of precedents constrains the Court to *void*, if $\ell_{\mathcal{F}} \geq u_{\mathcal{F}}$ the body of precedents constrains the Court *uphold*, while if $v_{\mathcal{F}} < \ell_{\mathcal{F}} < u_{\mathcal{F}}$ the Court has discretion over the case. A similar interpretation applies if the environment is \mathcal{M} so that the Court is constrained to void, constrained to uphold, or has discretion according to whether $\ell_{\mathcal{M}} \leq v_{\mathcal{M}}$, $\ell_{\mathcal{M}} \geq u_{\mathcal{M}}$ or $v_{\mathcal{M}} < \ell_{\mathcal{M}} < u_{\mathcal{M}}$.

In each period, the contracting parties *observe* the nature of the environment, the body of precedents, and the legal characteristics of the case. Therefore, they know whether the Court will be constrained by precedents or not and in which direction if so. They will also correctly forecast the Court's decision if it has discretion. In other words, under Case Law, in each of the environments, the parties anticipate correctly whether the Court will uphold or void the contract.²⁸

In the Statute Law environment the parties correctly anticipate what the Court will do since it is constrained to either *void* or *uphold* all contracts — regardless of the environment.

In the four possible combinations of environment (\mathcal{F} or \mathcal{M}) and Court ruling (\mathcal{V} or \mathcal{U}) the parties' behavior is easily determined. If the environment is \mathcal{F} and the ruling is \mathcal{V} , then the parties will invest in and trade w_1 , with an expected (across buyer types) beginning-of-period payoff for the Court of $\Pi(\mathcal{F}, \mathcal{V}) = 10$. If the environment is \mathcal{F} and the ruling is \mathcal{U} , the parties will invest in and trade w_2 with an expected (across buyer types) beginning-of-period payoff for the Court of $\Pi(\mathcal{F}, \mathcal{U}) = 13$. If the environment is \mathcal{M} and the ruling is \mathcal{V} the parties will separate as we described above and the expected (across buyer types) beginning-of-period payoff for the Court of is $\Pi(\mathcal{M}, \mathcal{V}) = 41$. If the environment is \mathcal{M} and the ruling is \mathcal{U} , then inefficient pooling obtains as we described above and the expected (across buyer types) beginning-of-period payoff for the Court of is $\Pi(\mathcal{M}, \mathcal{U}) = 32$.

Notice that the numbers we have posited clearly bear out the fact that in the \mathcal{F} environment the Court should uphold, while in the \mathcal{M} environment the Court should void. The

²⁸It should be emphasized that, despite their correct expectations, our parties always take their contract to Court. The Court rules, and thus affects the body of precedents. This is obviously unappealing as an assumption. We make it nevertheless as virtually all the extant literature does. Why, in equilibrium, and therefore with “correct” expectations contracting parties go to Court is a key question that is ripe for formal investigation. Nevertheless, it remains beyond the scope of this paper.

beginning-of-period expected payoffs trivially satisfy

3.3. The Statute Law Regime

Under Statute Law, the Courts are allowed *no discretion*. They are *all* bound to choose the same ruling \mathcal{V} or \mathcal{U} , regardless of the environment being \mathcal{F} or \mathcal{M} . Under Statute Law the Courts are committed to a particular — uncontroverted — behavior.

Since it is straightforward, we move directly to the dynamic version of the model for the Statute Law regime. Time is indexed by $t = 0, 1, 2, \dots$. A sequence of Courts face a stream of (iid) parties. The planner's (the legislature's) discount factor is $\delta \in (0, 1)$. The optimal Statute Law regime is obtained by picking a *single* ruling $\mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}$ so as to solve

$$\max_{\mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} (1 - \delta) \sum_{t=0}^{\infty} \delta^t [(1 - \rho)\Pi(\mathcal{F}, \mathcal{R}) + \rho\Pi(\mathcal{M}, \mathcal{R})] \quad (3)$$

The maximization problem in (3) is extremely simple since it is not genuinely dynamic.²⁹ In fact, given the particular numbers in (??) it can easily be fully solved explicitly. We state the following without proof.

Proposition 1. Statute Law Equilibrium Welfare: *The maximized value of (3) is denoted by $\mathcal{W}_S(\rho)$. We refer to this value as the equilibrium welfare of the Statute Law regime. The ruling that solves the maximization problem (3) is denoted by $\mathcal{R}_S(\rho)$. We refer to this as the equilibrium ruling under Statute Law.*

The equilibrium ruling $\mathcal{R} = \mathcal{R}_S(\rho)$ is \mathcal{U} for ρ between 0 and a threshold value $\rho_S^ \in (0, 1)$ and is \mathcal{V} for ρ between ρ_S^* and 1. With the particular numbers in (??) we get $\rho_S^* = 1/4$.³⁰*

The intuition behind Proposition 1 is straightforward. A single ruling, valid in all periods and environments must be chosen. Given the structure of payoffs in (??) the payoff to \mathcal{U} is larger in the \mathcal{F} environment, while the payoff to \mathcal{V} is larger in the \mathcal{M} environment. It then follows that choosing \mathcal{U} is optimal if the probability of the \mathcal{F} environment is sufficiently large, while choosing \mathcal{V} is optimal if the probability of the \mathcal{M} environment is sufficiently large.

²⁹Problem (3) is clearly equivalent to $\max_{\mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} (1 - \rho)\Pi(\mathcal{F}, \mathcal{R}) + \rho\Pi(\mathcal{M}, \mathcal{R})$.

³⁰Clearly, when $\rho = \rho_S^*$ both the \mathcal{V} and \mathcal{U} rulings solve problem (3). The threshold form of $\mathcal{R}_S(\rho)$ does not depend on the particular numbers involved, but only on the inequalities in (??). The value $\rho_S^* = 1/4$, on the other hand, obviously depends on the particular numbers at hand.

3.4. *The Time-Inconsistent Court*

Suppose that the Court is completely unable to commit to voiding or upholding the parties' contract in either environment. Then the only equilibrium outcome in each period is that the Court enforces the contract, and hence that the pooling equilibrium prevails.

To see this consider, in either environment, the subgame following the buyer's decision to invest in w_2 , his offer of a contract for w_2 , which is accepted by the seller. At this point, when the contract is brought to Court the buyer's investment is *sunk*, and hence the decision of which widget to trade is irreversible.

If the Court were to void the contract, the parties will be unable to trade w_2 , and hence the only expected surplus to materialize would be (using the numbers in (A.1) and (A.2)) 0 if the environment is \mathcal{F} (since no trade would take place) and 19 if the environment is \mathcal{M} (from the trade of w_3 for both types of buyer).

If the Court were to uphold the contract on the other hand the surplus from w_2 would also materialize. In this case the Court's payoff (again using the numbers in (A.1) and (A.2)) would be 14 if the environment is \mathcal{F} (from the trade of w_2 for both types of buyer) and 33 if the environment is \mathcal{M} (from the trade of both w_2 and w_3 for both types of buyer).³¹

Hence in either environment the Court ex-post would decide to enforce the parties' contract. But as we pointed out in Subsection 3.1 above, if this is the case, the only equilibrium outcome is the inefficient pooling in which the buyer's type is not revealed.

We summarize the (continuation) payoffs to the Case Law Court in a given period, as of the time it actually is called upon to decide whether to void or uphold the parties' contract below for future reference.

In a nutshell, what we have just described is the source of the time-inconsistency problem that will afflict the Court in a Case Law regime. Viewed from the point at which it is called upon to decide, the optimal decision for the Case Law Court is to uphold if the environment is \mathcal{F} , just as it is using the beginning-of-period payoffs in (??). However, viewed from the point at which it is called upon to decide, the optimal decision for the Case Law Court is to also uphold if the environment is \mathcal{M} : the opposite than is the case using the expected

³¹Notice that in both cases we are describing what matters for the Court in the subgame, namely the *continuation* payoffs (expected surplus). This is the reason for excluding the investment $I = 1$ from the computation.

beginning-of-period payoffs in (??). When the environment is \mathcal{M} the “present-bias” tells the Case Law Court to act in a manner that is inconsistent with the maximization of ex-ante welfare.

3.5. The Case Law Regime: The Precedents Technology

In a Case Law environment each Court is subject to the present-bias “temptation” (potential time-inconsistency) we described in Subsection 3.4 above. The temptation, however, is mitigated by the fact that each Court decision affects, via precedents, the decisions of subsequent Courts.

We begin by describing how the precedents affect the degree of discretion that each Case Law Court has.

As we described in Subsection 3.2, we think of the “body of precedents” at the beginning of time t , denoted by \mathcal{J}^t as being summarized by four numbers so that $\mathcal{J}^t = (v_{\mathcal{F}}^t, u_{\mathcal{F}}^t, v_{\mathcal{M}}^t, u_{\mathcal{M}}^t)$. Let $d_{\mathcal{F}}^t = u_{\mathcal{F}}^t - v_{\mathcal{F}}^t$ and $d_{\mathcal{M}}^t = u_{\mathcal{M}}^t - v_{\mathcal{M}}^t$. The t -th Case Law Court is constrained by precedents with probability $1 - d_{\mathcal{F}}^t$ and $1 - d_{\mathcal{M}}^t$ in each environment respectively. For simplicity, we assume that if this is the case, the body of precedents does not change between period t and period $t + 1$ so that $\mathcal{J}^{t+1} = \mathcal{J}^t$.

When a Case Law Court is *not* constrained by precedents (given \mathcal{J}^t this happens with probability $d_{\mathcal{F}}^t$ in environment \mathcal{F} and with probability $d_{\mathcal{M}}^t$ in environment \mathcal{M}), it can choose to void or uphold the parties’ contract at its discretion, according to whether the environment is \mathcal{F} or \mathcal{M} . A Case Law Court that exercises discretion can also choose the *breadth* of its ruling. We take this to be a single number $b^t \in [0, 1]$, with $b^t = 0$ interpreted as a maximally narrow ruling, and $b^t = 1$ as a maximally broad one.

The discretionary ruling $\mathcal{R}^t \in \{\mathcal{V}, \mathcal{U}\}$ of the t -th Case Law Court and the state of the environment $\mathcal{E}^t \in \{\mathcal{F}, \mathcal{M}\}$, together with the breadth of its ruling determine how the body of precedents \mathcal{J}^t is modified to yield the \mathcal{J}^{t+1} in which the $t + 1$ -th Case Law Court will operate.

Therefore, the precedents technology in the Case Law regime can be viewed as a map $\mathcal{J} : [0, 1]^5 \times \{\mathcal{V}, \mathcal{U}\} \times \{\mathcal{F}, \mathcal{M}\} \rightarrow [0, 1]^4$, so that $\mathcal{J}^{t+1} = \mathcal{J}(\mathcal{J}^t, b^t, \mathcal{R}^t, \mathcal{E}^t)$.

Typically, the map \mathcal{J} will embody the workings of a complex set of legal mechanisms and constitutional arrangements. It will also embody complex interaction effects that go,

for instance from a broad upholding in, say, state \mathcal{F} to an increased probability that future Courts will be forced to uphold contracts in state \mathcal{M} .

Somewhat surprisingly, we are able to carry out most of the analysis imposing a rather weak structure on \mathcal{J} .

Assumption 1. *Dynamics of Precedents:* The map \mathcal{J} satisfies the following conditions:

(i) (Residual Discretion) Assume that \mathcal{J}^t is such that $d_{\mathcal{M}}^t > 0$ and $d_{\mathcal{F}}^t > 0$. Then $\mathcal{J}^{t+1} = \mathcal{J}(\mathcal{J}^t, b^t, \mathcal{R}^t, \mathcal{E}^t)$ is such that $d_{\mathcal{M}}^{t+1} > 0$ and $d_{\mathcal{F}}^{t+1} > 0$, whatever the values of b^t , \mathcal{R}^t and \mathcal{E}^t .

(ii) (Zero Breadth) For any ruling \mathcal{R}^t and any environment \mathcal{E}^t , we have that $\mathcal{J}^t = \mathcal{J}(\mathcal{J}^t, 0, \mathcal{R}^t, \mathcal{E}^t)$ (so that in this case $\mathcal{J}^{t+1} = \mathcal{J}^t$).

The first condition in Assumption 1 simply asserts that the influence of precedents is never able to take discretion completely away from future Courts. This seems a compelling element of the very essence of a Case Law regime.

The second condition in Assumption 1 states that, regardless of the ruling it issues and of the environment, any Case Law Court can ensure (setting $b^t = 0$) that the breadth of its ruling is small enough so as to have *no effect* on future Courts. This condition merits some further comments.

First of all, the “zero breadth” condition of Assumption 1 greatly simplifies the technical side of our analysis. In particular it implies certain monotonicity properties of the dynamics of the Case Law regime that are used our arguments below. It should also be noted, however, that, while our characterization of equilibrium does, the basic trade-off between the present-bias temptation and the precedents effect does not depend on the availability of zero breadth rulings in the Case Law regime.

Finally, the possibility that a Case Law regime Court might decide to narrow down on purpose the precedential effect that its ruling has on future cases does correspond to reality. For instance in the US, a commonly used formula is for a Court to declare that they wish to “restrict the holding to the facts of the case.” In some other instances the Court may choose not to publish the opinion in an official Reporter. Unpublished opinions are collected by various services and so are available to lawyers. The decision not to publish in an official Reporter, however, is regarded by future Courts as a signal that the Court does not want its decision to have precedential value.³²

³²We are indebted to Alan Schwartz for useful guidance on these points.

We assume that all Case Law Courts are forward looking in the sense that they assign weight $1 - \delta$ to the current payoff, weight $(1 - \delta) \delta$ to the per-period Court payoff in the next period, weight $(1 - \delta) \delta^2$ to the per-period Court payoff in the period after, and so on.

The t -th period Case Law Court inherits \mathcal{J}^t from the past. Given \mathcal{J}^t , it first observes the state of the environment $\mathcal{E}^t \in \{\mathcal{F}, \mathcal{M}\}$, then it observes the outcome of the draw that determines the legal characteristics of the case ($\ell_{\mathcal{F}}$ or $\ell_{\mathcal{M}}$ as appropriate, as described in Subsection 3.2 above). Together with \mathcal{J}^t , this determines whether the t -th period Case Law Court has discretion or not. If it has discretion, the t -th Case Law Court then chooses \mathcal{R}^t and b^t , the ruling (void or uphold), and its breadth. Together with \mathcal{E}^t and \mathcal{J}^t this determines \mathcal{J}^{t+1} , and hence the decision problem faced by the $t + 1$ -th period Case Law Court.

Notice that the payoffs and hence the behavior of the period- t Case Law Court are affected by the behavior of the t -th period contracting parties and by all subsequent buyers and sellers. The behavior of the period- t contracting parties follows the pattern we described in Subsection 3.2 above. If the Court is constrained in one direction or the other, then the parties will know this since they observe \mathcal{J}^t and the realization of the relevant legal characteristics variable ($\ell_{\mathcal{F}}^t$ or $\ell_{\mathcal{M}}^t$, depending on the environment). As a result in the four possible combinations of environment (\mathcal{F} or \mathcal{M}) and (precedents-determined) ruling (\mathcal{U} or \mathcal{V}) they will behave exactly as we described in Subsection 3.2 above, yielding beginning-of-period- t payoffs to the Court as in (??).

Whenever the t -th Case Law Court is not constrained by precedents, in equilibrium its behavior will be determined by the trade-off between the present-bias we described in Subsection 3.4 and the effect of its decision, via precedents, on the decisions of future Courts. In equilibrium, however, it will also be the case that the period- t contracting parties can anticipate how the t -th Case Law Court will decide to rule in the face of this trade-off. In other words, in equilibrium the Court's decision will be correctly anticipated by the contracting parties even when the legal characteristics of the case imply that the precedents do not bind the Court's decision in any way. In short, in equilibrium, the beginning-of-period- t Court payoffs will be as in (??), depending on the ruling-environment pair, *regardless* of whether the t -th period Case Law Court is constrained by precedents or not.

Some new notation is necessary at this point to describe the strategy of the Case Law Courts when they are not constrained by precedents. The t -th Case Law Court choice of

ruling \mathcal{R}^t depends on both \mathcal{J}^t and \mathcal{E}^t . We let $\mathcal{R}^t = \mathcal{R}(\mathcal{J}^t, \mathcal{E}^t)$ denote this part of the Court's strategy. Similarly, we let the Court's (contingent) choice of breadth be denoted by $b^t = \mathbf{b}(\mathcal{J}^t, \mathcal{E}^t)$. Notice that, in principle, the choices of the t -th Case Law Court could depend on the entire history of past rulings, breadths, environments, legal characteristics (including the ones at time t) and parties' behavior. We restrict attention to behavior that depends only on the body of precedents \mathcal{J}^t and the type of environment \mathcal{E}^t . These are clearly the only "payoff relevant" state variables for the t -th Case Law Court. In this sense our restriction is equivalent to saying that we are restricting attention to the set of so-called *Markov-Perfect Equilibria*.³³ We will do so throughout the rest of the paper.

With this restriction, we can simply refer to *the* strategy of the Case Law Court, regardless of the time period t . This will sometime be written concisely as $\boldsymbol{\sigma} = (\mathcal{R}, \mathbf{b})$. Given \mathcal{J}^t and $\boldsymbol{\sigma}$, the expected payoff (as of the beginning of period t) to the t -th Case Law Court in period t , using our new notation and the one in (??), can be written as follows.

$$\begin{aligned} \Pi(\mathcal{J}^t, \boldsymbol{\sigma}, \rho) = & \\ & (1 - \rho) \{v_{\mathcal{F}}^t \Pi(\mathcal{F}, \mathcal{V}) + (1 - u_{\mathcal{F}}^t) \Pi(\mathcal{F}, \mathcal{U}) + d_{\mathcal{F}}^t \Pi(\mathcal{F}, \mathcal{R}(\mathcal{J}^t, \mathcal{F}))\} + & (4) \\ & \rho \{v_{\mathcal{M}}^t \Pi(\mathcal{M}, \mathcal{V}) + (1 - u_{\mathcal{M}}^t) \Pi(\mathcal{M}, \mathcal{U}) + d_{\mathcal{M}}^t \Pi(\mathcal{M}, \mathcal{R}(\mathcal{J}^t, \mathcal{M}))\} \end{aligned}$$

The interpretation of (4) is straightforward. The first two terms that multiply $(1 - \rho)$ refer to the cases in which the Court is constrained (to void and to uphold respectively) in the \mathcal{F} environment. The third term that multiplies $(1 - \rho)$ is the Court's payoff in the \mathcal{F} environment given its discretionary ruling $\mathcal{R}(\mathcal{J}^t, \mathcal{F})$. Similarly, the first two terms that multiply ρ refer to the cases in which the Court is constrained (to void and to uphold respectively) in the \mathcal{M} environment. The third and final term that multiplies ρ is the Court's payoff in the \mathcal{M} environment given its discretionary ruling $\mathcal{R}(\mathcal{J}^t, \mathcal{M})$.

Given the (stationary) preferences we have postulated, the overall payoffs to each Case Law Courts can be expressed in a familiar recursive form. Let a $\boldsymbol{\sigma}$ be given. Let $\mathbf{Z}(\mathcal{J}^t, \boldsymbol{\sigma}, \rho)$

³³See Maskin and Tirole (1994), Maskin and Tirole (2001) or Fudenberg and Tirole (1991), Ch.13. It is also worth noting that in an environment affected by a time-inconsistency problem like the one we have here, the existence of such equilibria is not straightforward. In many cases equilibria will in fact involve randomized choices, possibly conditional on publicly observable correlation devices. A full discussion of this point is well beyond the scope of the present paper. Suffice it to say that we do have "existence results" that show that the set of equilibria which we are characterizing below is in fact not empty. Details are available from the authors on request.

be the expected overall payoff (as of the beginning of the period) to the t -th Case Law Court, given \mathcal{J}^t and the sequence of strategies σ .³⁴ We can then write this payoff as follows.

$$\begin{aligned} \mathbf{Z}(\mathcal{J}^t, \sigma, \rho) &= (1 - \delta) \mathbf{\Pi}(\mathcal{J}^t, \sigma^t, \rho) + \\ &\delta [(1 - \rho)(1 - d_{\mathcal{F}}^t) + \rho(1 - d_{\mathcal{M}}^t)] \mathbf{Z}(\mathcal{J}^t, \sigma, \rho) + \\ &\delta (1 - \rho) d_{\mathcal{F}}^t \mathbf{Z}(\mathcal{J}(\mathcal{J}^t, \mathbf{b}(\mathcal{J}^t, \mathcal{F}), \mathcal{R}(\mathcal{J}^t, \mathcal{F}), \mathcal{F}), \sigma, \rho) + \\ &\delta \rho d_{\mathcal{M}} \mathbf{Z}(\mathcal{J}(\mathcal{J}^t, \mathbf{b}(\mathcal{J}^t, \mathcal{M}), \mathcal{R}(\mathcal{J}^t, \mathcal{M}), \mathcal{M}), \sigma, \rho) \end{aligned} \quad (5)$$

The interpretation of (5) is also straightforward. The first term on the right-hand side is the Court's period- t payoff. The first term that multiplies δ is the Court's continuation payoff if its ruling turns out to be constrained by precedents so that $\mathcal{J}^{t+1} = \mathcal{J}^t$. The second term that multiplies δ is the Court's continuation payoff if the environment at t turns out to be \mathcal{F} and the Court's decisions at t are $[\mathcal{R}(\mathcal{J}^t, \mathcal{F}), \mathbf{b}(\mathcal{J}^t, \mathcal{F})]$, while the third term that multiplies δ is the Court's continuation payoff if the environment at t turns out to be \mathcal{M} and the Court's decisions at t are $[\mathcal{R}(\mathcal{J}^t, \mathcal{M}), \mathbf{b}(\mathcal{J}^t, \mathcal{M})]$.

Now recall that the t -th Case Law Court decides whether to void or uphold the contract (if it is given discretion) and chooses the breadth of its ruling after the nature of the environment (\mathcal{F} or \mathcal{M}) is known and after the buyer's investment is *sunk*, and hence the decision of which widget to trade is irreversible. Hence the t -th Case Law Court *continuation* payoffs viewed from the time it is called upon to rule will have two components. The one that embodies the period- t payoff will be as in (??) reflecting the Court's present-bias in the \mathcal{M} environment. The one that embodies the Court's payoffs from period $t + 1$ onwards on the other hand will be as in (5) (with time indices shifted forward by 1 of course) since all the relevant decisions still lie ahead as far as the period- t Case Law Court is concerned.

It follows that, given \mathcal{J}^t and σ , the optimal decisions of the t -th Case Law Court can be characterized as follows. Suppose that the t -th Case Law Court is *not* constrained by precedents to either void or uphold the parties' contract.³⁵ Then, the values of $\mathcal{R}^t = \mathcal{R}(\mathcal{J}^t, \mathcal{E}^t)$

³⁴Note that, as a function, $\mathbf{Z}(\cdot)$ is independent of t because we are restricting attention to Markov-Perfect Equilibria.

³⁵Recall that if the ruling turns out to be constrained by precedents, the t -th Case Law Court does not make any choice and the body of precedents remains the same so that $\mathcal{J}^{t+1} = \mathcal{J}^t$.

$\in \{\mathcal{V}, \mathcal{U}\}$ and $b^t = \mathbf{b}(\mathcal{J}^t, \mathcal{E}^t) \in [0, 1]$ must solve

$$\max_{\mathcal{R}^t \in \{\mathcal{V}, \mathcal{U}\}, b^t \in [0, 1]} (1 - \delta) \widehat{\Pi}(\mathcal{E}^t, \mathcal{R}^t) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}^t, b^t, \mathcal{R}^t, \mathcal{E}^t), \boldsymbol{\sigma}, \rho) \} \quad (6)$$

It is now straightforward to define what constitutes an equilibrium in the Case Law regime.

Definition 1. *Case Law Equilibrium Behavior:* An equilibrium under the Case Law regime is a $\boldsymbol{\sigma}^* = [\mathcal{R}^*, \mathbf{b}^*]$ such that, for every $t = 0, 1, 2, \dots$, for every $\mathcal{E}^t \in \{\mathcal{F}, \mathcal{M}\}$ and for every possible \mathcal{J}^t , the pair $[\mathcal{R}^*(\mathcal{J}^t, \mathcal{E}^t), \mathbf{b}^*(\mathcal{J}^t, \mathcal{E}^t)]$ is a solution to³⁶

$$\max_{\mathcal{R}^t \in \{\mathcal{V}, \mathcal{U}\}, b^t \in [0, 1]} (1 - \delta) \widehat{\Pi}(\mathcal{E}^t, \mathcal{R}^t) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}^t, b^t, \mathcal{R}^t, \mathcal{E}^t), \boldsymbol{\sigma}^*, \rho) \} \quad (7)$$

For any given Equilibrium Behavior as in Definition 1 we can compute the value of the expected payoff to the Case Law Court of period $t = 0$, as a function of the initial value \mathcal{J}^0 . Using the notation we already established, this is denoted by $\mathbf{Z}(\mathcal{J}^0, \boldsymbol{\sigma}^*, \rho)$.

We denote by $\mathcal{W}_C(\mathcal{J}^0, \rho)$ the supremum of $\mathbf{Z}(\mathcal{J}^0, \boldsymbol{\sigma}^*, \rho)$ taken over all possible equilibria of the Case Law regime. With optimistic terminology, we refer to $\mathcal{W}_C(\mathcal{J}^0, \rho)$ as the equilibrium welfare of the Case Law regime given \mathcal{J}^0 .

4. The Possibility of Statute Law Dominance

4.1. Evolving Case Law and Mature Case Law

Given $\boldsymbol{\sigma}^*$ and an initial body of precedents \mathcal{J}^0 , as the randomness in each period is realized (the nature of the environment, whether the precedents bind or not, and how) a sequence of Court rulings will also be realized.

The realized number of times that the Case Law Courts have discretion and will void (\mathcal{V}) the parties' contract has an upper bound. Case Law eventually "matures," and all Case Law Courts will eventually succumb to the (time-inconsistent) temptation to rule \mathcal{U} .

Proposition 2. *Evolving and Mature Case Law:* Let any equilibrium $\boldsymbol{\sigma}^*$ for the Case Law regime be given.

³⁶It should be noted that in equilibrium the decision of the t -th Case Law Court is required to be optimal given *every possible* \mathcal{J}^t , and not just those that have positive probability given $\boldsymbol{\sigma}^*$ and \mathcal{J}^0 . This is a standard "perfection" requirement.

Then, there exists an integer m , which depends on δ but not on \mathcal{J}^0 , on ρ , or on the particular equilibrium σ^* , with the following property.

Along any realized path of uncertainty, the number of times that the Case Law Courts have discretion and rule \mathcal{V} does not exceed m .

Intuitively, each time a Case Law Court rules \mathcal{V} , it must be that the future gains from constraining future Courts via precedents exceed the instantaneous gain the Court can reap by succumbing to the ex-post temptation to rule \mathcal{U} . While the temptation remains constant through time, the effect on future Courts must eventually become small. As the state of precedents becomes more and more binding on future Courts, the gains from one more \mathcal{V} ruling shrink.

The state of precedents in the Case Law regime eventually becomes mature so that future Courts are already likely to be constrained not to give in to the present-bias temptation to rule \mathcal{U} . At this point, Case Law Courts will stop ruling \mathcal{V} whenever they have the discretion to do so.

4.2. Welfare Comparison

The present-bias temptation to uphold when the environment is \mathcal{M} lowers the equilibrium welfare under the Case Law Regime. Eventually Case Law becomes mature as in Proposition 2. This effect is obviously larger when ρ is larger so that the rich environment \mathcal{M} is more likely to obtain.

At the same time, when ρ is extreme (near 0 or near 1), the lack of flexibility of the Statute Law regime becomes less and less important. The decision that is optimal for the environment that obtains almost all the time is also almost optimal in expected terms.

Putting these two considerations together leads us to our main result.

Proposition 3. *Statute Law Welfare Dominance: The Statute Law regime yields strictly higher equilibrium welfare than the Case Law regime for high values of ρ .*

More specifically, let any \mathcal{J}^0 be given, and assume that this leaves positive discretion to the first Case Law Court. In other words assume that \mathcal{J}^0 is such that both $d_{\mathcal{F}}^0$ and $d_{\mathcal{M}}^0$ are strictly positive.

Then there exists a $\rho_C^* \in (0, 1)$ such that for every $\rho \in (\rho_C^*, 1]$ we have that $\mathcal{W}_S(\rho) > \mathcal{W}_C(\mathcal{J}^0, \rho)$.³⁷

³⁷In general, ρ_C^* depends on \mathcal{J}^0 .

When the environment changes sufficiently slowly (ρ sufficiently large), Statute Law dominates Case Law.

4.3. Case Law Dominance

Proposition 3 establishes that in some cases the Statute Law regime is superior to the Case Law one. In the framework we have set up, there are obviously cases in which the reverse is true. We discuss these cases informally to avoid setting up a considerable amount of extra notation.

Notice that there is nothing in our Assumption 1 about the dynamics of precedents that guarantees that these will evolve in the obvious intuitive way when the Case Law Courts take their decisions. These “monotonicity” conditions would essentially guaranteed that a ruling (of positive breadth) of \mathcal{R} in environment \mathcal{E} makes it more likely that future Case Law Courts are constrained to issue the same ruling in the given environment \mathcal{E} , and less likely that they will be constrained to issue the opposite ruling. A natural additional condition is that every time a Case Law Court issues a ruling with “sufficiently high” breadth in an environment \mathcal{E} then the likelihood that future Case Law Courts have discretion in the same environment \mathcal{E} is reduced.

The monotonicity conditions we have sketched are not in general sufficient to conclude that equilibrium welfare will be superior under Case Law than under Statute Law, even for intermediate values of ρ representing a fast-changing heterogeneous environment. Two further elements are necessary for the conclusion.

The first is rather unsurprising: the rate at which the future is discounted by each Case Law Court must not be too high. This is because the only discipline against each Court’s temptation to rule \mathcal{U} is only embodied in *future* rewards.

The second is a more novel consideration as far as we are aware. The degree of “spillover” of precedents from one environment to the other must not be too high. As an illustration, consider the case in which a ruling with positive breadth of \mathcal{V} in environment \mathcal{M} has two effects: to raise the probability that future Case Law Courts are constrained to rule \mathcal{V} in environment \mathcal{M} (a “direct” effect), and to raise even more the probability that future Case Law Courts are constrained to rule \mathcal{V} in environment \mathcal{F} (a “spillover” effect). While the direct effect is welfare enhancing, the spillover effect is not. This is because the best ruling

(both *ex-ante* and *ex-post*) in environment \mathcal{F} is in fact \mathcal{U} . It is then not hard to see that if spillover effects are sufficiently strong it could well be the case that, even for intermediate values of ρ , equilibrium welfare under Statute Law is superior.

The conditions of monotonicity, low discounting and not excessive spillovers seem eminently plausible in many cases. However, it is interesting to remark that several intertwined conditions need to be met to overcome the time-inconsistency problem in the Case Law regime.

5. Conclusions

Courts intervene in contractual relationships at the *ex-post* stage (if at all). Because of sunk investments and strategic decisions this generates a time-inconsistent present-bias in the decisions of Courts that can exercise discretion.

This observation has wide-ranging implications for the hypothesis that Case Law evolves towards efficient decisions. In a Case Law regime, each Court will trade off its current temptation to take an inefficient decision dictated by its present bias with the effect that its decision has on *future* Case Law Courts, via precedents. We find that under general circumstances — discretion never shrinks to zero, and the possibility of zero-breadth rulings that have no effect on the future — this effectively prevents Case Law from reaching full efficiency. Eventually, the effect via precedents must become small since it is a marginal one. The temptation to take the inefficient decision on the other hand remains constant through time. Hence, at some point Case Law “matures” in the sense that precedents are already very likely to constrain future Courts to take the efficient decision. This undoes the incentives to set the “right” precedents whenever the present Court has the chance to do so. Bounded away from full efficiency, Case Law stops evolving and settles into, narrow, inefficient decisions whenever precedents do not bind.

Once the propensity of Case Law to succumb to time-inconsistency is established, it is natural to ask the question of whether an inflexible regime of Statute Law in which Courts never have any discretion is superior in some cases. Even though we model the Statute Law regime in an extreme way — no flexibility at all — we find that Statute Law does indeed dominate in some cases. In particular if the environment changes sufficiently slowly (is sufficiently homogeneous) so that the inflexibility of Statute Law carries a sufficiently low cost, then it will dominate the Case Law regime in welfare terms.

Our findings are consistent with the idea that Case Law would dominate in highly dynamic sectors of the economy (e.g. Finance, Information Technology),³⁸ while Statute Law would yield higher welfare in the slow-paced sectors of the economy (e.g. Agriculture, Inheritance).

Appendix

A.1. AFP

In Anderlini, Felli, and Postlewaite (2006) (henceforth AFP) we study a multiple-widget contracting model with asymmetric information in which the Court optimally voids some of the parties' contract in order to obtain separation in equilibrium. We use a version of the model in AFP as the “contracting stage” of our dynamic environment mostly to fix ideas. As will be apparent below, the key features of the AFP model used here are that Court intervention is beneficial in some cases and that *ex-post* the Court's incentives are *not* to intervene when it in fact should from the point of view of ex-ante welfare.³⁹

The backdrop for our analysis is a numerical version of the parametric model in AFP, with the added possibility that the environment may in fact be such that the Court should uphold all contracts.

We refer to the latter as the “simple” environment (with fewer widgets, denoted \mathcal{F}) and to the former as the “rich” environment (with more widgets, denoted \mathcal{M}). The environment is \mathcal{F} with probability $1 - \rho$ and is \mathcal{M} with probability ρ .

In both environments there is a buyer and a seller, both risk-neutral. The buyer has private information on the costs and values of the relevant widgets. He can be of a “high” type (denoted \mathcal{H}) or of a “low” type (denoted \mathcal{L}), with equal probability. The buyer knows his type at the time of contracting, while the seller does not. As standard, there is an ex-ante contracting stage, followed by an investment stage, followed by the ex-post trading stage. For simplicity, at the ex-ante contracting stage the buyer has all the bargaining power, while the seller has all the bargaining power ex-post.

In the simple environment there are two widgets, w_1 and w_2 . These two widgets are mutually exclusive because they require a widget- and relationship-specific investment of $I = 1$ on the part of the buyer. The buyer can only undertake *one* investment, and the cost and value of either widget without investment are zero. The cost and value of w_i ($i = 1, 2$) (net of the ex-ante investment) if the buyer's type is $\tau \in \{\mathcal{L}, \mathcal{H}\}$ are

³⁸Rajan and Zingales (2003) present evidence that Common Law countries only develop better financial systems than Civil Law ones *after* 1913. Our model would be consistent with this observation if one could argue that the rate at which the financial sector environment changes accelerated sufficiently around that time. This is not the explanation put forth by Rajan and Zingales (2003) (who focus on the political economy of the problem), but in our view one worthy of future research.

³⁹The distinction between “forward looking” decisions (that maximize ex-ante welfare) and ones that focus on the parties currently before the Court can be found in some of the extant literature. Kaplow and Shavell (2002b) distinguish between “welfare” (ex-ante) and “fairness” (ex-post). Summers (1992) distinguishes between “goal reasons” (ex-ante) “rightness reasons” (ex-post).

denoted by c_i^r and v_i^r respectively. When investment takes place we take each of them to be as follows

	w_1	w_2
Type \mathcal{H}	$v_1^{\mathcal{H}} = 21, \quad c_1^{\mathcal{H}} = 1$	$v_2^{\mathcal{H}} = 25, \quad c_2^{\mathcal{H}} = 1$
Type \mathcal{L}	$v_1^{\mathcal{L}} = -1, \quad c_1^{\mathcal{L}} = 0$	$v_2^{\mathcal{L}} = 3, \quad c_2^{\mathcal{L}} = 1$

(A.1)

The rich environment is the same as the simple environment, save for the fact that a third widget w_3 is available. This widget is *not contractible* at the ex-ante stage, and does not require any investment.⁴⁰ Widget w_3 can be traded ex-post via a “spot” contract. Trading w_3 yields a positive surplus only if the buyer’s type is \mathcal{L} . We take the cost and values of the three widgets in the rich environment to be

	w_1	w_2	w_3
Type \mathcal{H}	$v_1^{\mathcal{H}} = 21, \quad c_1^{\mathcal{H}} = 1$	$v_2^{\mathcal{H}} = 25, \quad c_2^{\mathcal{H}} = 1$	$v_3^{\mathcal{H}} = 76, \quad c_3^{\mathcal{H}} = 100$
Type \mathcal{L}	$v_1^{\mathcal{L}} = -1, \quad c_1^{\mathcal{L}} = 0$	$v_2^{\mathcal{L}} = 3, \quad c_2^{\mathcal{L}} = 1$	$v_3^{\mathcal{L}} = 65, \quad c_3^{\mathcal{L}} = 3$

(A.2)

The Court may intervene in the parties’ contractual relationship by *voiding* contracts for either w_1 or w_2 .⁴¹ Because of the hold-up problem generated by the the widget- and relationship-specific investment, if the Court voids contracts for either w_1 or w_2 or both, then the corresponding widget will not be traded.

In the simple environment, the Court has no welfare-enhancing role to play. When all contracts are enforced, in equilibrium both types of buyer invest in and trade w_2 . This yields full social efficiency. The total expected surplus from trading (net of investment) is 13.

Equilibria in the rich environment are fully characterized in AFP. When the Court enforces all contracts, there is a *unique* equilibrium, which involves inefficient pooling. Both types of buyer invest in and trade w_2 , and, since the buyer’s type is not revealed, they also trade w_3 ex-post. The total expected surplus from trading (net of investment) in this case is 32. This outcome is clearly short of social efficiency since the type \mathcal{H} buyer trades w_3 , which generates *negative* surplus (-24).

If instead the Court intervenes and voids contracts for w_2 , the two types of buyer separate: behaving differently, they reveal their private information at the ex-ante contracting stage. The unique equilibrium outcome is that type \mathcal{H} buyer invests in and trades w_1 , but does not trade w_3 , while the type \mathcal{L} buyer does not invest in and does not trade either w_1 or w_2 ; he only trades w_3 ex-post. In this case the total expected surplus from trading (net of investment) is 41. While this outcome does not achieve full social efficiency it dominates the pooling outcome since it avoids the inefficient trade of w_3 from the part of the type \mathcal{H} buyer.⁴²

⁴⁰In AFP we argue that the ex-ante non-contractibility of w_3 is without loss of generality for the class of contracts we consider here.

⁴¹In AFP we argue that not allowing the Court to void contracts for w_3 is without loss of generality.

⁴²Full social efficiency in the rich environment would entail that both types of buyer invest in and trade w_2 , while only the type \mathcal{L} buyer trades w_3 ex-post. The total expected surplus from trading (net of investment) in this case would be 44.

In AFP it is also shown that voiding contracts for w_2 is the best that the Court can do in the rich environment.⁴³

To sum up, if the environment is simple a welfare-maximizing Court can do no better than not intervening at all. Intuitively, Court intervention has no value since disclosure of the buyer's private information itself has no social value.

If instead the environment is rich then an active Court that intervenes and voids contracts for w_2 will enhance social welfare. By intervening, the Court induces the two types of buyer to *disclose information* at the ex-ante contracting stage. This disclosure has positive social value in the rich environment.

From now on, by a Court that *voids* (indicated by \mathcal{V}) the parties' contract we mean a Court that will void contracts for w_2 (and uphold all others), while by a Court that *upholds* (indicated by \mathcal{U}) the parties' contract we mean a Court that will uphold *all* contracts.

A.2. Proofs

Lemma A.1: *Let σ^* be an equilibrium for the Case Law regime. Then expected welfare is weakly monotonically increasing in the sense that for any $\mathcal{J} \in [0, 1]^4$ and any $\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}$ we have that*

$$\mathbf{Z}(\mathcal{J}(\mathcal{J}, \mathbf{b}^*(\mathcal{J}, \mathcal{E}), \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \sigma^*, \rho) \geq \mathbf{Z}(\mathcal{J}, \sigma^*, \rho) \quad (\text{A.3})$$

Proof: By Definition 1 for every $\mathcal{J} \in [0, 1]^4$ and any $\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}$ the values $b = \mathbf{b}^*(\mathcal{J}, \mathcal{E})$ and $\mathcal{R} = \mathcal{R}^*(\mathcal{J}, \mathcal{E})$ must solve

$$\max_{\mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}, b \in [0, 1]} (1 - \delta) \widehat{\Pi}(\mathcal{E}, \mathcal{R}) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, b, \mathcal{R}, \mathcal{E}), \sigma^*, \rho) \} \quad (\text{A.4})$$

Suppose now that for some \mathcal{J} and some \mathcal{E} inequality (A.3) were violated. Then, using (ii) of Assumption 1, setting $b = 0$ yields

$$\mathbf{Z}(\mathcal{J}, \sigma^*, \rho) = \mathbf{Z}(\mathcal{J}(\mathcal{J}, 0, \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \sigma^*, \rho) > \mathbf{Z}^*(\mathcal{J}(\mathcal{J}, \mathbf{b}^*(\mathcal{J}, \mathcal{E}), \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \sigma^*, \rho) \quad (\text{A.5})$$

and hence

$$\begin{aligned} \widehat{\Pi}(\mathcal{E}, \mathcal{R}^*(\mathcal{J}, \mathcal{E})) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, 0, \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \sigma^*, \rho) \} > \\ \widehat{\Pi}(\mathcal{E}, \mathcal{R}^*(\mathcal{J}, \mathcal{E})) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, \mathbf{b}^*(\mathcal{J}, \mathcal{E}), \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \sigma^*, \rho) \} \end{aligned} \quad (\text{A.6})$$

which contradicts the fact that $\mathbf{b}^*(\mathcal{J}, \mathcal{E})$ and $\mathcal{R}^*(\mathcal{J}, \mathcal{E})$ must solve (A.4). ■

Lemma A.2: *Let σ^* be an equilibrium for the Case Law regime. Suppose that for some $\mathcal{J} \in [0, 1]^4$ and $\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}$ we have that*

$$\mathcal{R}^*(\mathcal{J}, \mathcal{E}) = \mathcal{V} \quad (\text{A.7})$$

⁴³Recall that the Court can choose between voiding no contracts, voiding contracts for w_1 , voiding contracts for w_2 and voiding contracts for both w_1 and w_2 . In AFP the case of mixed strategies for the Court is also considered. We do not allow probabilistic Court choices in the present set-up.

then it must be that⁴⁴

$$\mathbf{Z}(\mathcal{J}(\mathcal{J}, \mathbf{b}^*(\mathcal{J}, \mathcal{E}), \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \boldsymbol{\sigma}^*, \rho) - \mathbf{Z}(\mathcal{J}, \boldsymbol{\sigma}^*, \rho) \geq \frac{1-\delta}{\delta} [\widehat{\Pi}(\mathcal{E}, \mathcal{U}) - \widehat{\Pi}(\mathcal{E}, \mathcal{V})] \quad (\text{A.8})$$

Proof: From (7) of Definition 1, we know that for every $\mathcal{J} \in [0, 1]^4$ and any $\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}$ the values $b = \mathbf{b}^*(\mathcal{J}, \mathcal{E})$ and $\mathcal{R} = \mathcal{R}^*(\mathcal{J}, \mathcal{E})$ must solve

$$\max_{\mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}, b \in [0, 1]} (1-\delta) \widehat{\Pi}(\mathcal{E}, \mathcal{R}) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, b, \mathcal{R}, \mathcal{E}), \boldsymbol{\sigma}^*, \rho) \} \quad (\text{A.9})$$

Since (A.7) must hold it must then be that

$$(1-\delta) \widehat{\Pi}(\mathcal{E}, \mathcal{V}) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, \mathbf{b}^*(\mathcal{J}, \mathcal{E}), \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \boldsymbol{\sigma}^*, \rho) \} \geq \\ (1-\delta) \widehat{\Pi}(\mathcal{E}, \mathcal{R}^*(\mathcal{J}, \mathcal{U})) + \delta \{ \mathbf{Z}(\mathcal{J}(\mathcal{J}, 0, \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \boldsymbol{\sigma}^*, \rho) \} \quad (\text{A.10})$$

Using (ii) of Assumption 1 we know that $\mathbf{Z}(\mathcal{J}(\mathcal{J}, 0, \mathcal{R}^*(\mathcal{J}, \mathcal{E}), \mathcal{E}), \boldsymbol{\sigma}^*, \rho) = \mathbf{Z}^*(\mathcal{J}, \boldsymbol{\sigma}^*, \rho)$. Hence (A.10) directly implies (A.8). ■

Proof of Proposition 2: Let m be the smallest integer that satisfies⁴⁵

$$m \geq \frac{\max_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R}) - \min_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R})}{\min_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}} \frac{1-\delta}{\delta} [\widehat{\Pi}(\mathcal{E}, \mathcal{U}) - \widehat{\Pi}(\mathcal{E}, \mathcal{V})]} + 1 \quad (\text{A.11})$$

Notice next that $\mathbf{Z}(\mathcal{J}, \boldsymbol{\sigma}^*, \rho)$ is obviously bounded above by $\max_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R})$ and below by $\min_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R})$.

Suppose now that the proposition were false and therefore that along some realized history $h^t = (\mathcal{J}^0, \dots, \mathcal{J}^{t-1})$ the Case Law Court were given discretion and ruled \mathcal{V} for m or more times. Then using Lemmas A.1 and A.2 we must have that

$$\mathbf{Z}(\mathcal{J}^{t-1}, \boldsymbol{\sigma}^*, \rho) \geq m \min_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}} \frac{1-\delta}{\delta} [\widehat{\Pi}(\mathcal{E}, \mathcal{U}) - \widehat{\Pi}(\mathcal{E}, \mathcal{V})] + \min_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R}) \quad (\text{A.12})$$

Using (A.11), it is immediate that the right-hand side of (A.12) is greater than $\max_{\mathcal{E} \in \{\mathcal{F}, \mathcal{M}\}, \mathcal{R} \in \{\mathcal{V}, \mathcal{U}\}} \Pi(\mathcal{E}, \mathcal{R})$. Since the latter is an upper bound for $\mathbf{Z}(\mathcal{J}, \boldsymbol{\sigma}^*, \rho)$, this is a contradiction and hence it is enough to establish the claim. ■

⁴⁴Recall that with the particular number at hand (see (??)) we have that $\widehat{\Pi}(\mathcal{F}, \mathcal{U}) - \widehat{\Pi}(\mathcal{F}, \mathcal{V}) = \widehat{\Pi}(\mathcal{M}, \mathcal{U}) - \widehat{\Pi}(\mathcal{M}, \mathcal{V}) = 14$.

⁴⁵With the actual numbers in (??) and (??) the numerator of (A.11) equals 30, and the denominator equals $14(1-\delta)/\delta$.

Proof of Proposition 3: Fix an initial body of precedents \mathcal{J}^0 and a $\delta \in (0, 1)$. Fix a $\underline{\rho} \in (0, 1)$, and for every $\rho \in [\underline{\rho}, 1]$ fix an equilibrium (given \mathcal{J}^0) for the Case Law regime $\sigma^*(\rho)$.

Let m be as in Proposition 2. Consider a possible realization of uncertainty $\{\mathcal{E}^t\}_{t=0}^{m-1}$, $\{\ell_{\mathcal{F}}^t\}_{t=0}^{m-1}$ and $\{\ell_{\mathcal{M}}^t\}_{t=0}^{m-1}$ with the following properties. First $\mathcal{E}^t = \mathcal{M}$ for every $t = 0, \dots, m-1$. Second, if we let $h^m(\rho) = (\mathcal{J}^0, \mathcal{J}^1(\rho), \dots, \mathcal{J}^{m-1}(\rho))$ be the associated realized history in the $\sigma^*(\rho)$ equilibrium, then $\ell_{\mathcal{M}}^t \in (v_{\mathcal{M}}^t(\rho), u_{\mathcal{M}}^t(\rho))$ for every $t = 0, \dots, m-1$ and for every $\rho \in [\underline{\rho}, 1]$. In other words, along the realized path, the environment is \mathcal{M} and the Case Law Court has discretion in every period up to and including $t = m-1$, for every equilibrium $\sigma^*(\rho)$ with $\rho \in [\underline{\rho}, 1]$.

Next, we argue that this path has positive probability, bounded away from zero, provided that $\rho \in [\underline{\rho}, 1]$. To see this, observe first that the probability that the environment is \mathcal{M} in periods $t = 0, \dots, m-1$ is given by ρ^m . The probability that the Case Law Court has discretion in every period in $\sigma^*(\rho)$ is $\mathbf{d}(m, \rho) = \prod_{t=0}^{m-1} d_{\mathcal{M}}^t(\rho)$, where $d_{\mathcal{M}}^t(\rho)$ is given by the realized history $h^m(\rho)$. Therefore, if we let $\mathbf{d}(m) = \inf_{\rho \in [\underline{\rho}, 1]} \mathbf{d}(m, \rho)$ the probability of the entire path with the requisite properties is bounded below by $\rho^m \mathbf{d}(m)$. Trivially, the first term of this product is bounded away from zero, provided that $\rho \in [\underline{\rho}, 1]$. To see that $\mathbf{d}(m) > 0$, notice that since \mathcal{J}^0 by assumption has $d_{\mathcal{M}}^0 > 0$, and m is finite, then using (i) of Assumption 1 we have that for some $\underline{d} > 0$ it must be that $d_{\mathcal{M}}^t(\rho) > \underline{d}$ for every $t = 0, \dots, m-1$ and every $\rho \in [\underline{\rho}, 1]$. It follows that the entire path with the requisite properties must have probability, call it ξ , that is no smaller than $\rho^m \underline{d}^m > 0$.

Next, we consider two cases. Fix a $\rho \in [\underline{\rho}, 1]$. Along the positive probability path we have identified, in the equilibrium $\sigma^*(\rho)$, either all the Case Law Courts' rulings are \mathcal{V} or they are not. Suppose first that all the rulings are \mathcal{V} . Then by Proposition 2 it must be that in the $\sigma^*(\rho)$ equilibrium we have $\mathcal{R}^*(\mathcal{J}^{m-1}(\rho), \mathcal{M}) = \mathcal{U}$. If one or more rulings along the path are different from \mathcal{V} then clearly in the $\sigma^*(\rho)$ we have $\mathcal{R}^*(\mathcal{J}^t(\rho), \mathcal{M}) = \mathcal{U}$ for some $t = 0, \dots, m-1$.

We can now conclude that in any $\sigma^*(\rho)$ equilibrium with $\rho \in [\underline{\rho}, 1]$, with probability $\xi > 0$, some Case Law Court at time $t \leq m-1$ issues a ruling of \mathcal{U} in environment \mathcal{M} .

Using (??), it is immediate that the welfare of any Case Law Court equilibrium cannot go above that generated by a sequence of rulings that are \mathcal{U} whenever the environment in \mathcal{F} and \mathcal{V} whenever the environment is \mathcal{M} . Therefore, we can conclude that in any $\sigma^*(\rho)$ equilibrium with $\rho \in [\underline{\rho}, 1]$ the welfare of the Case Law regime is bounded above as follows⁴⁶

$$\mathbf{W}_C(\rho) \leq (1 - \delta) \left\{ \sum_{t=0}^{m-2} \delta^t [(1 - \rho)\Pi(\mathcal{F}, \mathcal{U}) + \rho\Pi(\mathcal{M}, \mathcal{V})] + \delta^{m-1} [(1 - \rho)\Pi(\mathcal{F}, \mathcal{U}) + (\rho - \xi)\Pi(\mathcal{M}, \mathcal{V}) + \xi\Pi(\mathcal{M}, \mathcal{U})] + \sum_{t=m}^{\infty} \delta^t [(1 - \rho)\Pi(\mathcal{F}, \mathcal{U}) + \rho\Pi(\mathcal{M}, \mathcal{V})] \right\} \quad (\text{A.13})$$

Now consider any $\rho > \max\{\underline{\rho}, \rho_S^*\}$ where ρ_S^* is as in Proposition 1. Using Proposition 1 the equilibrium

⁴⁶The first sum of terms in (A.13) is understood to be zero if $m = 1$.

welfare $\mathcal{W}_S(\rho)$ of the Statute Law Regime is

$$\mathcal{W}_S(\rho) = (1 - \delta) \sum_{t=0}^{\infty} \delta^t [(1 - \rho)\Pi(\mathcal{F}, \mathcal{V}) + \rho\Pi(\mathcal{M}, \mathcal{V})] \quad (\text{A.14})$$

Using (A.13) and (A.14) it is a matter of straightforward algebra to then show that if we set⁴⁷

$$\rho_C^* = \max \left\{ 1 - \frac{(1 - \delta)\delta^{m-1}\xi [\Pi(\mathcal{M}, \mathcal{V}) - \Pi(\mathcal{M}, \mathcal{U})]}{\Pi(\mathcal{F}, \mathcal{U}) - \Pi(\mathcal{F}, \mathcal{V})}, \underline{\rho}, \rho_S^* \right\} \in (0, 1) \quad (\text{A.15})$$

then for every $\rho > \rho_C^*$ it is the case that $\mathcal{W}_S(\rho) > \mathcal{W}_C(\rho)$, as required. ■

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⁴⁷Notice that the first term in the curly brackets in (A.15) in general depends on \mathcal{J}^0 . This is because ξ depends on \mathcal{J}^0 . With the actual numbers in (??) the ratio $[\Pi(\mathcal{M}, \mathcal{V}) - \Pi(\mathcal{M}, \mathcal{U})]/[\Pi(\mathcal{F}, \mathcal{U}) - \Pi(\mathcal{F}, \mathcal{V})]$ equals 3.

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