

# **GEORGE MASON UNIVERSITY SCHOOL OF LAW**

**UNCERTAINTY OF LAW AND THE LEGAL PROCESS**

**Giuseppe Dari-Mattiacci  
Bruno Deffains**

**05-39**

**GEORGE MASON UNIVERSITY LAW AND  
ECONOMICS RESEARCH PAPER SERIES**

This paper can be downloaded without charge from the Social Science Research  
Network: <http://ssrn.com/paper=869368>



UNIVERSITEIT VAN AMSTERDAM  
Amsterdam Center for Law & Economics

# Uncertainty of Law and the Legal Process

Giuseppe Dari-Mattiacci  
Bruno Deffains



ACLE

**Amsterdam Center for Law & Economics  
Working Paper No. 2005-10**

This paper can be downloaded without charge from the Social Science Research Network  
Electronic Paper Collection at: <http://ssrn.com/paper=869368>

The complete Amsterdam Center for Law & Economics Working Paper Series is online at:  
<http://ssrn.acle.nl>

For information on the ACLE go to: <http://www.acle.nl>

# Uncertainty of Law and the Legal Process

**Giuseppe Dari-Mattiacci**

Amsterdam Center for Law and Economics  
George Mason University School of Law

**Bruno Deffains**

Université Nancy 2, BETA-CNRS

December 7, 2005

## Abstract

There is extensive literature on whether courts or legislators produce efficient rules, but which of them produces rules efficiently? Is there an optimal mix of litigation and legislation? The law is inevitably subject to a certain degree of uncertainty *ex ante*; uncertainty makes the outcomes of trials difficult to predict and, hence, prevents parties from settling disputes out of court. Conversely, the law is necessarily certain *ex post*: litigation fosters the creation of precedents that reduce uncertainty. We postulate that there is a natural balance between the degree of uncertainty of a legal system (kept under control by litigation) and its litigation rate (sustained by uncertainty). We describe such equilibrium rates of litigation and uncertainty in a formal model, study how they are affected by two different policies – litigation fees/subsidies and legislation – and compare the costs and benefits of the legislative and the judicial process of lawmaking. We then extend the analysis to explore the implications of this approach.

*JEL classification*: K10, K40, K41.

*Keywords*: incompleteness of law, complexity of law, litigation, judge-made law, legislation.

## **Giuseppe Dari-Mattiacci**

Amsterdam Center for Law and Economics  
Roetersstraat 11, 1018WB Amsterdam (The Netherlands)  
gdarimat@uva.nl

George Mason University School of Law  
3301 Fairfax Drive, Arlington, VA 22201 (USA)  
gdarimat@gmu.edu

ssrn.com/author=333631

## **Bruno Deffains**

Université Nancy 2, BETA-CNRS  
13, Place Carnot, 54035 Nancy cedex (France)  
bruno.deffains@univ-nancy2.fr

## **Acknowledgments**

Most of this article was written when Giuseppe Dari-Mattiacci was a post-doctoral fellow at Université Nancy 2, CREDES. The authors would like to thank Laura Ammannati, Benito Arruñada, Jochen Bigus, Arnoud Boot, Iwan Bos, Afef Boughanmi, Boudewijn Bouckaert, Bruce Chapman, Péter Cserne, Massimo D'Antoni, Ben Depoorter, Myriam Doriat-Duban, Thomas Eger, Claude Fluet, Luigi Franzoni, Roberto Galbiati, Fernando Gomez, Aristides Hatzis, Arnard Kanning, Eric Langlais, Pierre Larouche, Bertand du Marrais, Matej Marinč, Jenny Monheim, Antonio Nicita, Marie Obidzinski, Ugo Pagano, Francesco Parisi, Alessandra Rossi, Paul Rubin, Pieter Ruys, Hans-Bernd Schäfer, Carine Sonntag, Georg von Wangenheim, Ralph Winter, Richard Zerbe, Todd Zywicki and the participants in the conferences of the European Association of Evolutionary Political Economy (Crete, 2004), the European Association of Law and Economics (Ljubljana, 2005) and the Canadian Law and Economics Association (Toronto, 2005), the Workshop on Institutional Analysis at Universitat Pompeu Fabra (Barcelona, 2005), the 2<sup>nd</sup> French-German Talks in Law and Economics (Saarbrücken, 2005), and seminars at Université Nancy 2, Tilburg Law and Economics Center, Amsterdam Center for Law and Economics, University of Bologna, University of Siena, and Université du Québec à Montréal. We are also indebted to Susan A. Russel for her skilled editorial assistance. This paper was first circulated with the title 'Incompleteness of Law'.

Comme si l'on pouvait couper les racines  
des doutes d'où naissent les procès, et qu'il  
y eût des digues qui pussent arrêter le torrent  
de l'incertitude et captiver les conjectures!  
(Blaise Pascal)

Nemo legem ignorare censetur.

## 1 Introduction

In *The Betrothed*, Alessandro Manzoni describes the tragic consequences of a disagreement about the right of way on the streets of 17<sup>th</sup>-century Italy.

"They both walked next to the wall, which (be it observed) was on Ludovico's right hand; and this, according to custom, gave him the right [...] of not moving from the said wall to give place to any one, to which custom at that time, great importance was attached. The Signor, on the contrary, in virtue of another custom, held that this right ought to be conceded to him in consideration of his rank, and that it was Ludovico's part to give way. So that in this, as it happens in many other cases, two opposing customs clashed, the question of which was to have the preference remaining undecided, thus giving occasions of dispute, whenever one hard head chanced to come in contact with another of the same nature."<sup>1</sup>

The dispute ends in tragedy: "There's one,—There are two.—They have pierced his body.—Who has been murdered? [...] Escape, poor fellow, escape".<sup>2</sup> Although not all conflicts are resolved in such bloodthirsty ways, disagreement about the dictates of the law imposes a heavy toll on society in terms of uncertainty of legal entitlements<sup>3</sup> and judicial costs incurred to

---

<sup>1</sup>Manzoni (1840, Ch. 4, Par. 7).

<sup>2</sup>*Ibidem* Par. 20.

<sup>3</sup>Weber (1925) remarks that certainty of law and predictability of adjudication are necessary conditions for the achievement of economic goals. Posner (1973, p. 451) observes: "The costs to the legal system imposed by the uncertainty of decision according

resolve it.<sup>4</sup> Somewhat later than the fictional events reported in the novel, Blackstone's *Commentaries of the Laws of England* read:

"The uncertainty of legal proceedings is a notion so generally adopted, and has so long been the standing theme of wit and good humour, that he who should attempt to refute it would be looked upon as a man, who was either incapable of discernment himself, or else meant to impose upon others."

"[This uncertainty] must be imputed to the defects of human laws in general, and [is] not owing to any particular ill construction of the [legal] system."<sup>5</sup>

Aristotle also refers to the impossibility of achieving certainty in the law as an inherent limitation of lawmaking.<sup>6</sup> Turning to modern legal systems, one could argue that the rules of interpretation that open most civil codes are a testimony to both the concern with certainty and the full awareness of its impossibility.<sup>7</sup> The same idea is embedded in the very process of "coral-style creation"<sup>8</sup> of the common law by judicial lawmaking and pervades the spirit in which restatements and statutes are compiled in the United States and elsewhere.

We employ the notion of *uncertainty of law* to refer to the fact that it is difficult to predict perfectly *ex ante* how the law will be applied *ex post* by the courts.<sup>9</sup> For instance, the law may be unclear concerning whether a

---

to a standard may exceed the benefits of a formally more efficient criterion of liability." From a different perspective, see Dixit (2004) discussing how various institutions support economic activities absent the law.

<sup>4</sup>Tillinghast – Towers Perrin (2005, p. 5) finds that the overall cost of the US tort system amounted to \$245.7 billion in 2003, half of which is due to the administrative costs of the system.

<sup>5</sup>Blackstone (1765-1769, Book III, Ch. 22).

<sup>6</sup>Aristotle (350 BC, Sec. 1, Part 9)); see further section 2.2. Leoni (1991, Ch. 4) provides an interesting discussion about certainty of law starting from ancient Greece. See Hart (1994) and Solum (1999) on the theory of the indeterminacy of law. See Green (2005), examining legal realism and Hart's (1994) critique to it in relation to indeterminacy of law and predictability of adjudication.

<sup>7</sup>Grundfest and Pritchard (2002) contends that ambiguity in the law may be the result of an effort by the legislature to compromise between different and often contrasting political views.

<sup>8</sup>Llewellyn (1960, p. 120), also emphasizing the role of the effect of uncertainty on the rate of litigation, discussed below in the text.

<sup>9</sup>Our notion of uncertainty is close to the notion of uncertainty used in economics as opposed to risk (Knight, 1921). In sociology, legal certainty as discussed by Weber (1925) is intended as 'gaplessness' of the legal system, in which all decisions are applications of

certain sanction follows from any given conduct, whether a tortfeasor is to pay damages to the victim of a certain accident, or which of two parties is vested with a property right.<sup>10</sup> There are several reasons why the law may be difficult to predict. Unforeseen contingencies, the inherent ambiguity of language itself, the use of vague notions (such as *bona fide*, reasonable man, or *bonus pater familias*), and a natural process of obsolescence due to continual changes in society and technology may all contribute to this state of affairs.<sup>11</sup> Previous literature has examined this problem from three main

---

the law, abstract laws are applied to concrete cases by the use of logic, and every conduct can be qualified either as compliance with or violation of the law. See also the analysis by Carbonnier (1988). Perelman (1968) and Bobbio (1993) deny the existence of gaps in the law on the grounds that any *ex ante* gap will always be filled *ex post* by the courts, which cannot deny justice. See also Kelsen (1960, pp. 245-250). This claim does not affect our reasoning, since we focus on the parties' inability to predict perfectly *ex ante* what the courts will decide *ex post*; moreover, even if the law is clarified by a court with reference to a specific case and hence is *ex post* perfectly clear in such a case, some uncertainty may persist with respect to how other courts will decide analogous cases in the future. Llewellyn (1951, p. 14) observes: "rules [...] are important so far as they help you see or predict what judges will do."

<sup>10</sup> Although criminal law tends to be less vulnerable to incompleteness thanks to principles of *nullum crimen sine lege* or *nulla poena sine lege*, problems may arise nevertheless. Pistor and Xu (2003, pp. 942-943) reports that theft of electricity created some uncertainty and hence litigation in more than one legal system in the late 19<sup>th</sup> century, as it was not clear whether electricity qualified as an 'asset' as defined by the law of theft.

<sup>11</sup> This can be simply due to time passing. However the process of obsolescence can be accelerated by high rates of activities in certain areas of the law over a certain period. Blackstone (1765-1769, Book III, Ch. 22) observes: "When the people of Rome were little better than sturdy shepherds or herdsmen, all their laws were contained in ten or twelve tables: but as luxury, politeness, and dominion increased, the civil law increased in the same proportion, and swelled to that amazing bulk which it now occupies". See also Kelsen (1960, pp. 348-356) and Hart (1994, pp. 124-136). Landes and Posner (1976) considers that the body of precedents can be analogized to a capital stock that depreciates over time. Calabresi (1982, p. 2) refers to the obsolescence of law, analyzing the role of courts and legislatures in American law. Posner (2003, p. 503) observes that the common law that developed in relation to accidents involving carriages and horse-drawn wagons was not an adequate response to the legal problems arising from the use of modern means of transportation. Zweigert and Kötz (1998, pp. 90-91) make a similar point about the rapid obsolescence of articles 1382-1386 of the French Civil Code after the Industrial Revolution. One may object to this trend by observing that, although the rule becomes obsolete, the decision criteria that judges employ are so predictable that no uncertainty arises, as it is perfectly clear how they will interpret the law in future disputes. This point is well taken, but simply turns the problem of certainty in the law into one of certainty in the meta-law (the rule used to interpret and innovate existing laws). This argument may regress *ad infinitum*, unless we can arrive – along Kelsen's (1960) lines – at a common (meta)rule, a Basic Norm, on which everyone agrees and from which all other rules can be unequivocally derived. The maximization of social welfare has been proposed as such a fundamental rule

perspectives: *rules vs. standards* (when should the law be clarified?),<sup>12</sup> *incomplete law theory* (who should clarify the law?)<sup>13</sup> and *complexity of law* (who benefits from uncertainty?).<sup>14</sup> All of these approaches share the same aim of providing a theory capable of evaluating different lawmaking institutions on the basis of their ability to *produce efficient rules*. The key contribution of this paper is instead to ask the question of whether these institutions *produce rules efficiently*.

---

of policymaking by law and economics scholars, but it is fair to say that there is large disagreement not only on whether but also on how such criterion should be implemented (see Kaplow and Shavell, 2002, and the literature thereby quoted) As long as this is not possible, our argument holds for meta-rules as it holds for rules.

<sup>12</sup>The distinction between *rules* and *standards* (Ehrlich and Posner, 1974; Diver, 1983) depends upon the degree of precision with which the law is stated. Standards such as the reasonable man or the *bonus pater familias* are vague *ex ante* and their content is determined *ex post* by a judge on a case-by-case basis. Instead, rules such as a speed limit are precise *ex ante*. Kaplow (2000) argues that legal systems need to find an equilibrium between over-detailed rules and ambiguous standards, stressing pros and cons of either approach. This distinction does not directly bear on our framework. The process of legal clarification that we describe may concern both rules and standards. On the one hand, rules need adaptation when they become obsolete and lose adherence to reality: an obsolete rule may generate uncertainty. On the other hand, standards are more vague to begin with and need a constant work of judicial adaptation. However, standards need not be more unpredictable than rules, if the way in which courts interpret the standards is stable and clear. Likewise, the rules vs. standards dichotomy does not perfectly correspond to the distinction between complete and incomplete law, to which we refer in the next note and accompanying text. Pistor and Xu (2003, p. 941) distinguishes between type I and type II uncertainty. The former refers to standards, which are *ex ante* incomplete by definition. The latter refers to rules, which are *ex post* incomplete as it is inherently impossible to account for all possible contingencies. Along similar lines, Schauer (2003) argues that the distinction between rules and standard may disappear in practice, as decisionmakers push standards towards rules and vice versa. Also Ehrlich and Posner (1974, pp. 277-278) discusses the latter feature of rules and notices that rules age more quickly than standards, precisely because of their specificity. A related contribution is Parisi, Fon and Ghei (forthcoming) discussing the timing of legal innovation through legislation. Scott and Triantis (forthcoming) examines the choice between rules and standards by contractual parties in anticipation of future litigation.

<sup>13</sup>Pistor and Xu (2003); Xu and Pistor (2003). The notion of incomplete law is the conceptual analog of incomplete contracts (Hart and Moore, 1999). The incomplete law theory focuses on the allocation of residual lawmaking and enforcement functions to courts and regulatory agencies under incomplete law. Tirole (1999) and Maskin and Tirole (1999) observe that for a contract to be incomplete parties must be unable to forecast their future payoffs probabilistically; the logic of this point is analogous to our notion of uncertainty and will be central in the selection of cases for trial presented below in section 2.

<sup>14</sup>White (1992) studies the problem of legal complexity from a public choice perspective arguing that lawyers benefit from a certain degree of uncertainty. We return to the role of lawyers in the conclusions. Eggleston, Posner and Zeckhauser (2000) discuss complexity in contracts.

Conceptually, we make a distinction between the efficiency of the products of the lawmaking process and the efficiency of the legal process itself in providing a certain, complete and predictable set of rules at the lowest cost for society. In principle, certainty in the law may be attained irrespective of whether the content of legal rules is in accordance with notions of welfare, fairness or justice.<sup>15</sup> We examine two ways in which a legal system may address problems of uncertainty in the law; the two lawmaking institutions that we consider are litigation and legislation.<sup>16</sup> We suspect that enhancing the study of the legal process will also advance our understanding of the rules thereby produced and hence offer a more refined toolbox for the comparison of judge-made law vs. statutes.<sup>17</sup>

---

<sup>15</sup>We make therefore no claim concerning whether judges or legislators are more efficient rule-makers and whether inefficient rules are litigated more often than efficient ones. Landes and Posner (1976) analyze the production of legal rules but consider only the judiciary as a source of legal certainty. Our contribution is different because we also consider the legislature. In Landes and Posner's analysis, new legislation is a source of uncertainty rather than of certainty, we discuss this possibility further in the text. Priest (1987) considers the effect of uncertainty on litigation rates; in addition to this aspect, we also examine the effect of litigation on uncertainty.

<sup>16</sup>Unlike previous literature, focusing in private interference with the lawmaking process, we abstract from private parties' efforts to change statutory or judge-made rules through lobbying or strategic litigation, respectively. We will discuss this issue along with other motives for litigation in section 6.5. See Rubin, Curran and Curran (2001), studying such a forum choice by rent-seeking parties.

<sup>17</sup>The academic discussion on the relative merits of judge-made law vs. statutes mainly originated from the *efficiency-of-the-common-law hypothesis*, stating that judge-made laws tend to be more efficient than those enacted by legislatures, because (i) judges seek efficiency (Posner, 2003, p. 503) or because (ii) inefficient rules are more often (Rubin, 1977; Priest, 1977) or (iii) more intensely (Goodman, 1978) challenged in court than efficient ones. These studies are based on the demand-side pressure towards efficiency provided by repeat litigants. Others have objected that inefficiency may result from the indeterminacy of the evolutionary process (Cooter and Kornhauser, 1980), the pressure of organized interest groups similar to regulatory capture (Hirshleifer, 1982; Rubin, 1982; Bailey and Rubin, 1994), the want of relevant information (Aranson, 1992), the fact that courts only hear a biased sample of cases (Hadfield, 1992). For recent studies see Rubin (2005a and 2005b), Gennaioli and Schleifer (2005) and Hylton (2005). Supply-side analysis are provided by Zywicki (2003), in which is the competition among different courts that drives the efficiency of the common law, and Fon and Parisi (2003), which introduces the idea that legal evolution may be explained by whether plaintiffs or defendants exert more control over the jurisdiction, having the choice of whether (and where) to file a claim. From a broader perspective, the debate on the efficiency of the common law is related to the still growing literature on legal evolution, *law and finance* and *legal origins*, studying the differences between legal systems with respect to their ability rapidly to adapt to changes in society (Hayek, 1960), provide good institutions (North, 1988; Mahoney, 2001; Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2003), or well-functioning markets (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998), and trying to explain the origin of

Deriving our implications from a large and consistent body of previous literature, we provide a theoretical model of the legal process. We proceed by first focusing on the relationship between the degree of uncertainty in a certain area of the law and the rate of litigation in that area. The interplay of uncertainty and litigation is bilateral: more uncertainty yields more litigation; on the contrary, more litigation leads to less uncertainty. In fact, when matters are less clear and more difficult to predict, parties' expectations over the outcome of the adjudication are more likely to diverge. As a result, parties to a dispute will tend to settle less often and the litigation rate will increase. Conversely, when more cases are adjudicated, courts have an opportunity to remove some of the ambiguities in the law and thus reduce the degree of uncertainty.

Society may incur relevant costs due to the uncertainty of legal entitlements and bear direct and indirect expenses associated with the litigation process. Seeking to reduce these costs, policymakers may alter the rate of litigation by taxing it, thus increasing the burden on the parties to a dispute and improving their incentives to settle.<sup>18</sup> Alternatively, the legislator may intervene to remove the doubts in the system by amending the law. In reality, uncertainty in the law may increase as a result of legislation as usually new statutes are followed by a cloud of contrasting interpretative attempts. For the purpose of this analysis, however, we can ideally decompose legislative effort into two types: gap-filling, aimed at enhancing the law's *ex ante* certainty, and reforms, aimed at changing the law. Throughout the analysis, we will refer to gap-filling legislation and only consider law reforms along with other causes of uncertainty.

Given the mutuality between the degree of uncertainty and the rate of litigation, the effects of such policies are far from straightforward. Trying to reduce the litigation rate (by increasing the litigation costs) will also re-

---

such differences (Glaeser and Schleifer, 2002). See also the reports of the World Bank's (2003, 2004 and 2005) *Doing Business Project*. For a critique of the common law system of lawmaking see Tullock (1997). Roe (1996) explains legal evolution as a combination of a weakly-dominant natural selection of sufficiently efficient rules, accidental events and path dependence. From a public choice perspective, the problem has been analyzed by Crew and Twright (1990). On the point of efficiency of legal rules, see also Stinchcombe (1999) for a comparison of Weber's (1925) support for a rigid civilian approach to lawmaking and legal certainty and Llewellyn's (1960) praise of the piecemeal approach of the common law. Recent literature also compares rules produced by means of legislation with rules produced through adjudication on the basis of their cognitive characteristics (Schauer, 2005; Rachlinski, 2006).

<sup>18</sup>Law and economics scholars have observed that the private incentives to resort to litigation may not be aligned with society's interest. See Priest (1982) and Shavell (1982b and 1997).

sult in an increase in uncertainty, due to fewer cases going to trial, which in turn makes the litigation rate increase, having an offsetting effect on the direct aim of the policy adopted. Likewise, clearing up legal uncertainty by amending existing laws will reduce uncertainty and, hence, improve parties' propensity to settle; but, when litigation decreases, the degree of uncertainty rises, countervailing the initial reduction.<sup>19</sup> Only by considering the interaction between uncertainty and litigation can we assess the final effects of litigation-costs policies and direct legislation and discuss their impact on social welfare.

This article is organized as follows. In section 2, we set the framework of the analysis; building on a large body of existing literature we illustrate the microfoundations of our theory. In section 3, we present a model for the macro-analysis of the legal process. In section 4, we discuss two policy instruments, direct legislation and litigation fees/subsidies, and describe their effect on the rate of litigation and the degree of uncertainty. In section 5, we discuss the effects of litigation and legislation on social welfare. In section 6, we conclude with some comments on additional issues that may bear on our analysis.

## 2 Framework

Our analysis focuses on the decision of risk-neutral individuals whether to settle or go to trial as a function of how clear and predictable the law and its application by the judiciary are. Four main hypotheses govern this framework:

1. Litigation results in the creation of precedents which help clarify uncertain laws; settlement does not produce precedents;
2. Uncertainty in the law supports litigation because it makes parties more likely to have different expectations concerning the outcome of the adjudication and thus less likely to settle out of court;

---

<sup>19</sup>Posner (2003, p. 554) explains: "If [legal uncertainty] is great, there will be much litigation [...]. But since litigation [...] generates precedents, the surge in litigation will lead to a reduction in legal uncertainty, causing the amount of litigation to fall in the next period. Eventually, with few new precedents being created, legal uncertainty will rise, as the old precedents depreciate (because they are less informative in a changed environment), and this uncertainty will evoke a new burst of litigation and hence an increased output of precedents."

3. Litigation costs borne by the parties in a controversy affect their propensity to go to trial instead of settling out of court: higher costs reduce the rate of litigation, while lower costs foster litigation;
4. The legislature may vary the amount of resources invested in reducing the degree of uncertainty while promulgating new laws, amending or abrogating existing ones.

All of these issues have been individually investigated in both legal and economic scholarship. In this section, we will better explain their implications for our model and discuss their support in existing literature. Readers who are familiar with the literature can skip this section without loss of continuity. In the next section, we will present a formal model of uncertainty of law and litigation.

## 2.1 More litigation, less uncertainty

Like Kuhn's (1962) alternation of scientific theories, the law needs to be continually adapted to the modern means of production of goods and ideas, exchange and interaction. Absent a refreshing process of judicial adaptation (or, as we will examine in the following, legislative amendments), the more time passes, the more obsolete any rule is inexorably bound to become. By adjudicating cases and writing opinions, judges help to clarify the ambiguities in the law and fine-tune abstract rules to an ever-changing array of concrete cases. They do so by creating new common law precedents or by interpreting statutes.<sup>20</sup> Litigation, however, is expensive for society.

The subtle arts of settlement and alternative methods of dispute resolution are often prized for allowing the legal system to save on litigation costs. Nevertheless, as Posner (1973, p. 442) observes, enhancing the settlement rate "cannot be regarded as unequivocally desirable" since it reduces the information-production effect of litigation. Such information is in fact a positive externality of the litigation system because it also accrues to third parties not involved in the dispute and only potentially interested in the same problem in the future.<sup>21</sup> Settlement agreements are not generally dis-

---

<sup>20</sup>Calabresi (1982) analyzes the role of American courts in the interpretation of statutes. See also Macey (1986) and Elhauge (1991).

<sup>21</sup>Posner (2003, p. 531) suggests that such an externality may justify the public funding of the judiciary. See also Shavell (1997, pp. 595-596). Hylton (2005) observes that information may support the evolution towards efficiency of the common law. We emphasise a different issue; we do not focus on the information *gathered* by the judge (which helps making decisions that better adhere to reality) but rather on the information *produced* by the judicial decision in terms of making the rule clearer.

closed. Thus, they lack the ability "to explicate and give force to the values embodied [in the law, interpret them, and] bring reality into accord with them. [... As a result, settlement may] deprive a court of the occasion, and perhaps even the ability, to render an interpretation."<sup>22</sup> On the contrary, in the course of a trial, judges not only in common but also in civil law jurisdictions may help lift the veil of uncertainty surrounding unclear legal issues and contribute to the evolution of precedents or the formation of a *jurisprudence constante*.<sup>23</sup>

## 2.2 More uncertainty, more litigation

Aristotle (350 BC, Sec. 1, Part 9), discussing Solon's constitution, observes:

"[S]ince the laws were not drawn up in simple and explicit terms [...], disputes inevitably occurred, and the courts had to decide in every matter, whether public or private. Some persons in fact believe that Solon deliberately made the laws indefinite, in order that the final decision might be in the hands of the people. This, however, is not probable, and the reason no doubt was that it is impossible to attain ideal perfection when framing a law in general terms."

There are two aspects of the effect of uncertainty of law on the rate of litigation that need to be considered here. Firstly, uncertainty in the law may affect the rate at which a conflict between two parties arises; secondly, once a conflict has arisen, uncertainty in the law may affect the litigants' decision whether to go to trial or settle the dispute. Concerning the first aspect, as noted in the passage cited above, uncertainty in the law may increase

---

<sup>22</sup>Fiss (1984, pp. 1085, 1087-1088) also criticizing the modern trend towards the facilitation of settlement on grounds that settlement decisions may be distorted by the wealth of individuals, the interests of third parties, or the private need to seek appeasement rather than justice, and that settlement may hinder successive judicial involvement in the case.

<sup>23</sup>Litigation may enhance certainty of the law irrespective of the preferences of judges. What is important for our analysis is the emergence of patterns of decisions on a certain issue and not the intentions of the judges behind them. Also the emergence of conflicting jurisprudence may improve the certainty of the law, because, as we will see in the following, what matters is that the probability of success be known by both litigants and not that it be close to either 100% or zero. In this sense, we adopt a weaker notion of information-production than in Hayek (1973). In most cases, however, some degree of uniformity is likely to be eventually reached as some cases proceed to appellate courts or possibly the Supreme Court. The fact that some courts may be biased in favor of either party does not affect our framework. Biases in fact may be perfectly predictable and hence play no role in the problem we are analyzing.

the amount of compliance and enforcement errors and, more in general, the number of violations. For example, under very complex taxation rules, people may incur in some violations although they intended to abide by the law. More precisely, uncertainty in the law is analogous to assuming that there are type-I and type-II errors in the enforcement of the law. One who believes to act in his or her own right could be punished and one who intentionally violates the law could get away with it. Literature on the economics of law enforcement has long remarked that both occurrences induce an increase in the number of violations.<sup>24</sup> An enforcement error is not necessarily an error on the part of the enforcer, but may be also interpreted as an error in predicting what the enforcer will do. Thus, due to uncertainty, more conflicts are likely to arise, because the cost of violating (what one thinks is) the law is reduced by one type of error, while the other adds a potential cost to compliance, unbalancing the choice in favor of violation.

When this occurs, parties may still avoid a trial by settling the case as mentioned in the preceding second aspect. Trials are expensive and, at times, painful experiences both for society and for the parties involved. On this basis, it is easy to explain why the vast majority of cases are settled without even being filed, at some point before the trial<sup>25</sup> or, at latest, "on the courthouse steps".<sup>26</sup> Rather puzzling is instead why any case is tried at all.<sup>27</sup> The economic models addressing this matter may be divided into two main groups. On the one hand, Landes (1971), Posner (1972, 1973), and Gould (1973) provide models of litigation in which parties have diverging expectations over the outcome of the adjudication. Both parties are optimistic about their chances to win and hence may not be inclined to settle for a lower amount.<sup>28</sup> This divergence has been explained in different ways.

---

<sup>24</sup>See P'ng (1986).

<sup>25</sup>Posner (1973, p. 429, n. 43) attributes the divergence in the litigation rates in accident suits and in malpractice suits to the larger uncertainty of the latter, more recent area of the law. See *Judicial Business of the United States Courts* (2004), Ostrom, Kauder and LaFountain (2001), Kritzer (1991), Ross (1980), and Danzon and Lillard (1983) for figures and studies on the US litigation system.

<sup>26</sup>Spier (1992) explains that delay in settlement may be due to the parties trying to signal that they are tough in order to extract a better deal.

<sup>27</sup>For recent surveys on the economics of litigation and settlement see Cooter and Rubinfeld (1989), Hay and Spier (1998), Daughety (2000), and Daughety and Reinganum (2005a).

<sup>28</sup>Landes (1971) is the now standard model of litigation. See also Shavell (1982a), Danzon and Lillard (1983) and Priest and Klein (1984). Gould (1973) also shows that if both parties are inclined to think that they will lose, it is advantageous for them to litigate and bet against themselves, thus exploiting their private information. Posner (1973, p. 418) regards this case as empirically irrelevant, because the betting contract will not be

The parties may derive such optimistic beliefs from some private information they possess about the likelihood to win in court,<sup>29</sup> which they may not be willing to disclose to their counterparts or they are unable to credibly do so or they do not do so for fear of losing the advantage of surprise at trial.<sup>30</sup> A different reason why parties' expectations may diverge emerges from experimental evidence, pointing to the fact that disputants make self-serving valuations of their probability to win the case. There is a systematic tendency for one to believe to have better chances than his or her counterpart.<sup>31</sup> Uncertainty in the law makes the outcome of the adjudication more difficult to predict and hence supports the divergence of the parties' subjective expectations.<sup>32</sup>

On the other hand, others explain litigation by considering that parties have different stakes although they face the same probability of victory,<sup>33</sup> that parties may sue for merely strategic reasons in order to extract a settlement offer or other benefits<sup>34</sup> or for irrational motives,<sup>35</sup> that the rate of litigation may be affected by the way lawyers are paid,<sup>36</sup> or that parties may settle in order to avoid the bad publicity of a trial or the formation

---

legally enforceable and because each party will have an incentive to behave during the trial as to lose the case. See also Drahozal (2004), analyzing ex ante selection of disputes to defer to arbitrators instead of judges. Lederman (1999) provides an empirical analysis of predictors of trial.

<sup>29</sup>Bebchuk (1984). See also Cooter and Rubinfeld (1989), Kritzer (1991) and Kennan and Wilson (1993). Spier (1994) shows that a positive fraction of cases will not be settled even if negotiation consists of a long series of offers and counteroffers.

<sup>30</sup>Posner (1973, p. 422). If this is not the case, parties will disclose their private information in the pretrial phase in order to obtain a more generous settlement agreement (Shavell, 1989). The presence of discovery rules that oblige parties to lay down their private information before the trial may facilitate settlement (Sobel, 1989) but, even so, parties may still be uncertain about each other's investments in the trial, which affect the probability of winning (Hay, 1995). Pretrial negotiation may also break down because parties fail to agree on how to split the surplus accruing from settlement (Cooter, Marks and Mnookin, 1982); such failure can also be derived from asymmetric information on each other's bargaining power (Farmer and Pecorino, 1994).

<sup>31</sup>Loewenstein, Issacharoff, Camerer and Babcock (1993); Mnookin (1993).

<sup>32</sup>Hanssen (1999) finds that courts with appointed judges exhibit higher litigation rates than courts with elected judges and argues that this difference may be explained by the fact that appointed judges are more independent and hence less predictable than their elected colleagues.

<sup>33</sup>See Rubin (1977), Priest (1977) and Goodman (1978). See also Posner (1973, p. 419) with a simple model of litigation due to higher stakes.

<sup>34</sup>P'ng (1983); Rosenberg and Shavell (1985); Bebchuk (1988); Katz (1990).

<sup>35</sup>Cross (2000).

<sup>36</sup>See Anderson (1996).

of precedent.<sup>37</sup> We do not deny the importance of such explanations. In fact, the relative importance of uncertainty vs. other causes of failure to settle is a determinant of the elasticity of the litigation rate to the degree of uncertainty, which in turn, as we will discuss in the following, determines the effects of different policies on litigation and uncertainty of law. We will also return on this issue in the conclusions.

### 2.3 More gap-filling legislation, less uncertainty

More effort expended in lawmaking may slow down the natural process of obsolescence of the law. A caveat is needed here however. As we anticipated in the introduction, it may not seem obvious that legislation enhances certainty in the law; as a matter of fact it often does the opposite.<sup>38</sup> Pascal (1658, p. 40) observes: "*les obscurités se multiplient par les commentaires*" (the more commentaries, the more obscure the law is).

In order to avoid these complications, we restrict our analysis to a specific type of legislative effort, that aimed at filling gaps in the law. In other words, we consider that, given a specific law, the legislator could make it clearer by investing more resources in more careful drafting and testing.<sup>39</sup> This could also mean abrogating or simply rewriting a statute, without introducing any new disposition. Legislation that makes the law more unclear does not enter our analysis, because the lack of clarity is hopefully not the principal aim of the legislator, but an accident that could have been avoided by more careful and systematic drafting. The cost, however high, of such improvements is what we consider in the analysis under the label of legislation costs. This view is in line with Bentham's (1817) endorsement of codification as a way to rationalize the law and reduce the uncertainty of the legal system. From this perspective, gap-filling legislation may be seen as a public, centralized, and *ex ante* supply of legal certainty.

---

<sup>37</sup> Daughety and Reinganum (1999 and 2005b).

<sup>38</sup> Landes and Posner (1976) advances this view.

<sup>39</sup> Blackstone (1765-1769, Book III, Ch. 22) observes: "[...] a multitude of decisions, or cases adjudged, will arise; for seldom will it happen that any one rule will exactly suit with many cases. [...] But, wherever this happens to be the case in any material points, the legislature is ready, and from time to time both may, and frequently does, intervene to remove the doubt; and [...] determines by a declaratory statute how the law shall be held for the future."

## 2.4 More litigation costs, less litigation

We have already remarked that, *ceteris paribus*, settlement is preferred over trial because of its lower costs for the parties. There is extensive literature on the fact that, if the litigation costs increase, the litigation rate drops, since litigation becomes more expensive relative to settlement. Likewise, if litigation costs decrease, the rate of litigation is expected to rise.<sup>40</sup> Litigation costs include any cost borne by the parties to a dispute, thus also lawyers' fees, time, distress, delay in judgment,<sup>41</sup> and possibly litigation fees. The policymaker can affect these costs by altering the litigation fee or introducing a litigation subsidy (as for instance through legal aid). Contrary to legislation, a litigation-cost policy does not directly affect the degree of uncertainty of a legal system, but, through the effect on the rate of litigation, has an indirect effect, which will be analyzed in the next section.

It is finally important to remark that the litigation costs that are relevant at this point of the analysis are those borne by the parties. The portion of the cost of the judicial system borne by the taxpayers does not play a role as a determinant of litigation, but will enter our analysis at a later stage when we discuss social welfare.

## 3 Model

The reciprocal influence of uncertainty and litigation on each other can be illustrated by means of a simple model. Let  $L \in [0, 1]$  denote the rate of litigated cases:  $L = 0$  if all cases are settled,  $L = 1$  if all cases are tried. In addition, let  $U \in [0, 1]$  be some index of the degree of uncertainty of law over a certain legal issue, which can also be used as an index of how much the parties' expectations over the outcome of the adjudication are likely to diverge:  $U = 0$  if parties' expectations over the probability of success converge,  $U = 1$  if parties' expectations are diametrically divergent.

In our framework, the rate of litigation  $L$  depends on the degree of uncertainty  $U$  and on the privately-borne cost of litigation  $C \in [0, \infty)$ ; conversely, the degree of uncertainty  $U$  depends on the rate of litigation  $L$  and on the legislature's gap-filling effort  $S \in [0, \infty)$ . According to the four statements supported in the previous section, these relations can be expressed as follows:

---

<sup>40</sup>Posner (1973, p. 418); Bebchuk (1984); Reinganum and Wilde (1986). Even if the cost of going to trial is higher than the value of the dispute, a party may be able to extract a settlement if the litigation costs are sufficiently divisible over time (Bebchuk, 1996).

<sup>41</sup>Posner (1973, pp. 420-421); Landes (1971, pp. 61-62).

$$\begin{cases} U = u(L, S) \\ L = l(U, C) \end{cases} \quad (1)$$

with:

1.  $u_L \leq 0$ : More litigation, less uncertainty. Litigation enables the judicial system to intervene in the process of clarifying the law in response to a changing social and economic environment, countering obsolescence, and it may be seen as a constant process of consolidating the law by means of reconciling it with constantly emerging new scenarios.
2.  $l_U \geq 0$ : More uncertainty, more litigation. Private parties' decisions of whether to settle or litigate are contingent on the degree of uncertainty over the legal matter of the claim. More uncertainty makes parties' expectations over the judicial adjudication more often diverge and therefore increases the litigation rate.
3.  $u_S < 0$ : More gap-filling legislation, less uncertainty. Public, direct supply of certainty through legislation fills gaps in the law and counters the process of obsolescence leading to a reduction in the degree of uncertainty.
4.  $l_C < 0$ : More litigation costs, less litigation. A higher private cost of lawsuits curbs litigation and enhances settlement.

While  $L$  and  $U$  are variables,  $C$  and  $S$  are policy parameters. Given any pair of  $C$  and  $S$ , there will be equilibrium rates of litigation and uncertainty that balance each other out as shown in figure 1 (which, for simplicity, depicts straight lines).

### FIGURE 1

Let upper bars denote the levels of  $L$  and  $U$  that solve expression (1). Such equilibrium levels of litigation and uncertainty may also be expressed as functions of  $C$  and  $S$ , as to emphasize that the equilibrium rates of litigation and uncertainty depend upon these two parameters:  $\bar{L} = \bar{l}(C, S)$  and  $\bar{U} = \bar{u}(C, S)$ ,

## 4 Comparative statics analysis

The policymaker can control both policy parameters: the investment in gap-filling legislation can be varied, and litigation can be taxed or subsidized as to affect the cost privately borne by the parties. In order to appreciate the effects of changes in the litigation costs on  $\bar{L}$  and  $\bar{U}$ , let us consider the total derivative of  $\bar{L}$  with respect to  $C$ :<sup>42</sup>

$$\left. \frac{d\bar{L}}{dC} \right|_{S=\text{constant}} = \frac{l_C}{1 - u_L l_U} < 0$$

An increase in the litigation costs triggers a decrease in the equilibrium level of litigation. Since the partial derivatives  $l_U$  and  $u_L$  appear in the denominator, and their product is negative, it is clear that when their absolute values decrease, the effect of litigation costs on the equilibrium level of litigation is enhanced. That is to say that the less interdependent litigation and uncertainty are, the more effective a policy of controlling the rate of litigation through litigation costs is. Conversely, the more litigation and uncertainty mutually influence each other, the more the attempt to reduce the rate of litigation by means of an increase in litigation costs will be offset by the fact that when litigation decreases, uncertainty increases and tends to produce a counteracting force that induces an increase in litigation. As a result, litigation will decrease less than it would have in the absence of any feedback effect. A litigation-cost policy to control the rate of litigation attains the maximum effect when either  $l_U$  or  $u_L$  is zero (the litigation rate is independent of uncertainty and / or the degree of uncertainty is independent of litigation).

It is also easy to show that the final effect of an increase in the litigation cost is an increase in the level of uncertainty; vice versa, the final effect of a reduction in the litigation cost is a reduction in the level of uncertainty. In fact:

$$\left. \frac{d\bar{U}}{dC} \right|_{S=\text{constant}} = \frac{l_C u_L}{1 - u_L l_U} \geq 0$$

If  $u_L = 0$ , a litigation-cost policy has no effect on the level of uncertainty. However, if  $l_U = 0$ , the effect is larger than for positive levels of  $l_U$ . In general, the effect of litigation-cost policies on uncertainty is directly related

---

<sup>42</sup>Subscripts denote partial derivatives. Totally differentiating  $\bar{L} = l(\bar{U}, C)$  we have  $d\bar{L} = l_U u_L d\bar{U} + l_C dC$ . Rearranging we have the expression in the text. The same applies to all results presented in this section and will not be repeated.

to the absolute value of  $u_L$  but inversely related to  $l_U$ . The results so far attained can be summarized by the following proposition:

**PROPOSITION 1.** *An increase in litigation costs reduces the level of litigation but increases the level of uncertainty; vice versa, a reduction in litigation costs increases the level of litigation but reduces the level of uncertainty. The less litigation affects uncertainty (i.e. the less  $|u_L|$ ), the greater the effect of litigation-cost policies on litigation and the less the effect thereof on uncertainty. On the contrary, the less uncertainty affects litigation (i.e. the less  $|l_U|$ ), the greater the effect of litigation-cost policies on both litigation and uncertainty.*

Likewise, in order to assess the effect of public supply of certainty let us calculate the total derivative of  $U$  with respect to  $S$ :

$$\left. \frac{d\bar{U}}{dS} \right|_{C=\text{constant}} = \frac{u_S}{1 - u_L l_U} < 0$$

An increase in the public supply of certainty causes a reduction in the level of uncertainty for any given level of litigation. However, since uncertainty has decreased, the equilibrium level of litigation will also decrease, triggering as a result an increase in uncertainty. The attempt to reduce uncertainty by publicly supplying certainty may be partially offset by a reduction in the private supply of certainty through litigation. As before, the effectiveness of supply policies depends negatively upon the degree to which litigation and uncertainty mutually affect each other. The maximum effect of supply policies may be attained when either  $u_L$  or  $l_U$  is zero. Conversely, a reduction in the public supply of certainty will increase litigation and therefore the final effect on the actual level of uncertainty might be partially offset.

Finally, it is easy to show that the final effect of an increase in the public supply of certainty is a reduction in the level of litigation and, vice versa, a reduction in the public supply of certainty causes an increase in the level of litigation. In fact:

$$\left. \frac{d\bar{L}}{dS} \right|_{C=\text{constant}} = \frac{u_S l_U}{1 - u_L l_U} \leq 0$$

If  $l_U = 0$ , a supply policy has no effect on the rate of litigation. However, if  $u_L = 0$  the effect is higher than for negative levels of  $u_L$ . In general, the magnitude of the effect of supply policies on litigation is directly related to

$l_U$  but inversely related to the absolute value of  $u_L$ . These results can be synthesized by the following proposition:

**PROPOSITION 2.** *An increase in the public supply of certainty reduces the rate of litigation while also reducing the level of uncertainty; vice versa, a reduction in the public supply of certainty increases the rate of litigation while also increasing the level of uncertainty. The less uncertainty affects litigation (i.e. the less  $|l_U|$ ), the greater the effect of supply policies on uncertainty and the less the effect thereof on litigation. On the contrary, the less litigation affects uncertainty (i.e. the less  $|u_L|$ ), the greater the effect of supply policies on both litigation and uncertainty.*

## 5 Legislation vs. litigation-costs policies

The relationship between litigation and uncertainty may be loosely analogized to a demand-supply model for the specific good of our concern: certainty of law. This analogy is only suggestive and may help us interpret the results in a graphical manner, but it should not be understood as carrying the usual meaning in terms of prices and quantities exchanged in a market. The litigation function  $L = l(U, C)$  can be interpreted as the demand for certainty. In fact private parties are willing to litigate and bear the related costs in order to reduce the cloud of uncertainty that surrounds the legitimacy of their claims rather than settle in the shadow of such uncertainty. The curve  $L = l(U, C)$  provides a measure of how much parties are willing to pay in terms of litigation to enhance certainty (i.e. reducing uncertainty), for any given level of litigation costs  $C$ . Litigation is the 'price' that parties are willing to pay for certainty of law. Conversely, the uncertainty function  $U = u(L, S)$  may be seen as a private supply function of certainty. Through litigation parties reduce the degree of uncertainty. The curve provides a measure of how much litigation is needed in order to reduce uncertainty, for any given level of the public supply of certainty  $S$ . Litigation is the 'cost' of producing certainty through adjudication. An equilibrium is attained when our 'demand' and 'supply' cross each other, as depicted in figure 1. Note that the figure depicts uncertainty on the horizontal axis, while demand and supply refer to certainty. This is why the slopes are inverted if compared to traditional models, and why we observe a decreasing supply function and an increasing demand function.

The above discussion on the effects of different policies on the levels of litigation and uncertainty may thus be reframed into a traditional framework

in which the demand and supply curves are shifted up- or downwards by exogenous shocks either on the demand side (a variation in the litigation costs  $C$ ) or on the supply side (a variation in legislation  $S$ ). The results of propositions 1 and 2 will be hereafter reinterpreted with the help of simple graphical analysis.

### 5.1 The effect of litigation costs on litigation and uncertainty

A variation in litigation costs  $C$  has the effect of shifting the demand function  $L = l(U, C)$ . If litigation costs increase, the demand function moves downwards as in figure 2 (a). The final result of an increase in litigation costs is an increase in uncertainty and a partially offset decrease in litigation. This result quantitatively depends on the elasticity of the litigation and uncertainty functions.

#### FIGURE 2

If uncertainty  $U = u(L, S)$  is perfectly inelastic with respect to changes in litigation, an increase in litigation costs corresponds to a final decrease in litigation without increasing uncertainty, as depicted in figure 2 (b). On the contrary, if uncertainty is perfectly elastic as in figure 2 (c), an increase in litigation costs only corresponds to an increase in uncertainty, as the effect on the rate of litigation is completely offset by the feedback effect of uncertainty on litigation.

It may be further remarked that the elasticity of the litigation function  $L = l(U, C)$  with respect to changes in uncertainty of law affects the effectiveness of litigation cost policies, the effect being maximal when litigation is inelastic.

### 5.2 The effect of legislation on litigation and uncertainty

Public intervention in the legal system as a way to provide better and clearer rules has an obvious direct and negative effect on the degree of uncertainty. However, since a reduction in uncertainty also reduces litigation, increasing public effort in clarifying the law may be partially offset by a reduction in the private supply of certainty through litigation, as shown by figure 3 (a).

#### FIGURE 3

An increase in the public supply of certainty  $S$  as a direct effect reduces uncertainty. As an indirect effect, a reduction in uncertainty also reduces litigation. The outcome of certainty-supply policies is a reduction in both litigation and uncertainty. As before, the outcome quantitatively depends on the elasticity of the curves. If litigation is perfectly inelastic, an increase in the supply of certainty reduces uncertainty without reducing litigation, as in figure 3 (b). On the contrary, if litigation is perfectly elastic, public supply of certainty only reduces litigation, while the degree of uncertainty remains unchanged, as in figure 3 (c). In the latter case, public supply of certainty simply substitutes the private one, without any resulting effect on legal certainty. Also the elasticity of the uncertainty curve affects the outcome. The effect of supply policies is maximal when uncertainty is inelastic.

### 5.3 The socially optimal levels of litigation and uncertainty

In the previous sections, we remarked that equilibrium levels of litigation and uncertainty exist that mutually determine each other. The effect of public policies aimed at controlling either or both depends on their reciprocal interaction and on the offsetting effects that we have emphasized. In this section, we address the question of what the optimal levels of litigation and uncertainty are, among all the equilibrium levels of litigation and uncertainty that may be attained by some combination of litigation-costs and legislation policies. In our simple framework, litigation does not directly affect deterrence.<sup>43</sup> Rather, deterrence is affected, as we have explained, by the level of uncertainty in the law, through the effect that uncertainty has on the probability of type I and II errors in the legal system.

Let us consider as a benchmark case a world without uncertainty, in which the litigation rate is zero and the allocation of resources is optimal. We can then compare the real world to such an ideal one. Finding the socially optimal levels of uncertainty and litigation and, consequently, designing optimal policies to achieve them in a world with a positive degree of uncertainty in the law may be regarded as a cost minimization problem. In this scenario, litigation triggers some direct costs in terms of court administration, lawyers' fees and emotional distress, a portion of which,  $C$ , is directly borne by the parties, while the rest is borne by taxpayers. Uncertainty triggers instead allocative costs, as the lack of certainty concerning legal entitlements distorts the process of resource allocation. Moreover, the public supply of legal certainty has a cost that, without loss of generality, we

<sup>43</sup>See Hay (1994) and Spier (1997) on litigation and deterrence.

will be represented by the level of public supply itself,  $S$ . Let  $G$  represent the overall cost of the judicial system due to litigation and  $D$  represent the allocative cost of uncertainty.<sup>44</sup> Let us further specify these costs as follows:

$$\begin{aligned} G &= g(\bar{L}) \\ D &= d(\bar{U}) \end{aligned}$$

with  $g_{\bar{L}} > 0$  and  $d_{\bar{U}} > 0$ . The litigation costs  $C$  borne by the parties to a dispute may represent a fraction of the overall costs,  $C \leq G$ , or they may exceed the cost  $G$ .<sup>45</sup> In the latter case, a tax is levied on litigation. In either case,  $C$  represents a transfer between the litigants and the taxpayers and is therefore not included in the determination of the total social cost. On the contrary, the magnitude of the overall cost,  $G$ , matters. The social cost minimization problem may be formalized as follows:

$$\min_{C,S} [g(\bar{l}(C,S)) + d(\bar{u}(C,S)) + S] \quad (2)$$

For the sake of simplicity, we shall assume that the problem in expression (2) is strictly convex and has positive and unique solutions. Let  $C^*$  and  $S^*$  denote such solutions. They satisfy the two first-order conditions:

$$-\frac{\partial G}{\partial C} = \frac{\partial D}{\partial C} \quad (3)$$

$$-\frac{\partial(G+D)}{\partial S} = 1 \quad (4)$$

---

<sup>44</sup>Posner (1973, p. 400) describes the efficiency of the legal system in terms of 'error costs' and 'direct costs'. Error costs are analogous to  $D$ , the allocative costs in the text, while direct costs are the costs  $G$ . A fundamental difference between Posner's analysis and ours is that we evaluate the cost  $D$  exclusively in relation to whether the law is clear or not, and do not consider, as Posner does, whether the existing rules are the best rules we could possibly have.

<sup>45</sup>Posner (1973, p. 418) argues that policies aimed at reducing litigation costs may in fact increase the cost for society as the number of trials may surge. In the present analysis we make a distinction between the litigation cost borne by society as a whole,  $G$ , and the cost privately borne by the litigants,  $C$ . We notice that  $G$  may be reduced, as for instance by improving the efficient use of resources by the courts, without reducing  $C$ , or even while  $C$  increases, as for instance if a litigation fee is levied. Thus the two effects described by Posner may be separated. See also Kaplow (1994); Shavell (1997) discusses an average compensation rule to reduce litigation costs.

From the assumptions made, it is easy to show that the signs of the terms in the former expressions are as follows:<sup>46</sup>

$$\begin{aligned} \frac{\partial G}{\partial C} &< 0 & \frac{\partial G}{\partial S} &\leq 0 \\ \frac{\partial D}{\partial C} &\geq 0 & \frac{\partial D}{\partial S} &< 0 \end{aligned}$$

These results show the trade-off at work in the balancing of the different costs derived, on the one hand, from the functioning of the legal system and, on the other hand, from uncertainty in legal rules. The optimal settings of the two policy parameters than we consider ought to take such trade-offs into account. From expression (3) it follows that the private costs,  $C$ , affects the cost of litigation and the costs of uncertainty in opposite ways; hence, the problem is to find a balance in the trade-off between decreasing the overall litigation costs and increasing the misallocation costs for a given level of public supply of certainty. From expression (4) it follows that since  $S$  affects  $G$  and  $D$  in the same direction, an increase in the public supply of certainty of law reduces both the overall cost of litigation and the misallocation costs. The optimal level of  $S$  balances a decrease in their sum with an increase in the direct cost of public supply of certainty of law.

## 6 Concluding remarks

While modern economic analyses focus primarily on the efficiency of legal rules, the legal process itself was the target of scorn by some of the most pointed writers, from Aristophanes (*The Wasps*, 422 BC) to Kafka (*The Trial*, 1925). On the relationship between legal rules and the legal process, Holmes (1881, p.1) observed that "In order to know what [the law] is, we must know what is has been, and what it tends to become. We must alternatively consult history and existing theories of legislation. But the most difficult labor will be to understand the combination of the two into new products at every stage". We have attempted to describe the mutual interaction between the diachronic development of the law through the judicial process and the effects of legislative intervention through the lens of an economic theory of the lawmaking process.

---

<sup>46</sup>  $\frac{\partial G}{\partial C} = g_L \frac{dL}{dC} \Big|_{S=\text{constant}} < 0$ ;  $\frac{\partial D}{\partial C} = d_U \frac{dU}{dC} \Big|_{S=\text{constant}} \geq 0$ ;  $\frac{\partial G}{\partial S} = g_L \frac{dL}{dS} \Big|_{C=\text{constant}} \leq 0$ ;  
 $\frac{\partial D}{\partial S} = d_U \frac{dU}{dS} \Big|_{C=\text{constant}} < 0$ .

Although the law necessarily suffers from some degree of *ex ante* uncertainty, gaps may be filled *ex post* by the courts. This analysis has considered *ex ante* legislation and *ex post* adjudication as alternative ways to reduce the uncertainty of the law; we have argued that the rate of litigation in a legal system and its degree of uncertainty are connected with each other. By using a simple model we have regarded certainty of law as a good that can be supplied by the state or privately sought by the citizens through the judicial process of dispute resolution.

When detailed laws are directly supplied by the legislature, the degree of uncertainty falls; however, a fall in uncertainty causes a similar reduction in the level of litigation, which in turn increases uncertainty. Therefore, the net effect of legislation on uncertainty is less than its direct effect. Our analysis provides the insight that attempts to foster the certainty of the law may find a natural obstacle in the offsetting effect they have on the courts' lawmaking activity. The likely response to direct legal amendments by the legislature is a drop in both the degree of uncertainty and the litigation rate.

When the policymaker targets the litigation rate by affecting the costs of bringing a lawsuit through taxes or subsidies, the litigation rate and the degree of uncertainty change in opposite directions. If the cost of litigation is lowered, the litigation rate will rise, causing the degree of uncertainty to fall, while the reduction in uncertainty partially offsets the rise in litigation. Instead, if the policymaker aims at reducing the litigation rate, uncertainty will rise and thus spur more litigation, partially offsetting the intended direct effects of the policy. Our analysis leads to the conclusion that the rate of litigation and the degree of uncertainty of a legal system are inherently related and that one cannot control the former without affecting the latter and vice versa. In carrying out our study of the legal process, we have abstracted from several aspects that may bear on legislation and adjudication. In the following, we will offer some comments on some additional factors.

## 6.1 Common vs. civil law

In the face of the divide between civil law and common law jurisdictions, our theory posits that broader reliance on judge-made law may yield systematically higher litigation rates, due to the fact that less certainty of law is provided by the legislatures. However, the legal process, both in courts and at the legislative level, is not only concerned with gap-filling. Many if not most laws innovate on old ones, rather than clarifying their dictates. Law reforms may result in more rather than less uncertainty irrespective of whether they are carried on by legislatures or by courts, making it necessary

to distinguish between gap-filling and reforms.

Our approach emphasizes that neither the common nor the civil law system is in principle superior, the difference between the two being a different balance in the allocation of costs triggered by the production of law. Legislation comes at a cost that is entirely paid by taxpayers, while the litigation costs are at least partially borne by the disputing parties. We have provided some indications of how the optimal mix of litigation and legislation could balance these costs.

Our theory raises another point that concerns the modern waves of litigation in certain areas of the law, such as medical malpractice or product liability. We have stressed that policies aimed at reducing the litigation rate also affect the degree of the law's uncertainty and will, under certain conditions, suffer from a serious feedback effect due to the fact that reduced litigation triggers uncertainty, which in turn tends to raise the litigation rate. Understanding the way in which litigation and uncertainty in the law interact will help policymakers and scholars comprehend the effects of policies targeting either problem.

An interpretation of our results – the one that more directly follows from our model – is that governments may curb the degree of uncertainty of the legal system by supplying certainty directly through legislation or indirectly through the judicial system, at the price of higher litigation rates. A second interpretation, which mirrors the first, is that governments may want to reduce the litigation rate and may do so directly, by burdening litigants with additional costs, thus increasing uncertainty, or indirectly, by providing certainty and hence removing the motives for litigation.

We have tried to assess the costs and benefits of the different ways in which such policies may be carried out. While the cost of centralized, direct lawmaking is borne by taxpayers, the cost of indirect lawmaking through the courts is partially borne by taxpayers and partially spread among litigants in the form of lawyers' fees and time spent dealing with the judicial system. Legislation thus has a direct and publicly borne cost, while private parties at least partially carry the costs of litigation, both in terms of time and money devoted to the case and in terms of the distortions that the uncertainty over their rights imposes upon their activities. Whether the ultimate aim is to reduce uncertainty or to keep litigation under control, the optimal mix of the two policies described above – legislation vs. litigation taxes or subsidies – has been shown to balance their public and private costs.

Our analysis of the legal process is static. Nevertheless, there are some dynamic aspects of the interaction between litigation and legislation that bear on the comparison between civil and common law. Leoni (1991) and

Zywicki (1996, pp. 996-1004) observe that there is a relationship between the source of law (judicial precedent vs. legislation) and the nature of the uncertainty surrounding the dictates of the law. According to this view, the common law is more likely to exhibit short-term uncertainty. Given a process of regular judicial revision, the common law continually and incrementally changes but it does so within clear and stable principles that make it predictable in the long run. On the contrary, legislation is more precise and hence more predictable in the short run, but law reforms through legislation are difficult to predict and are luckily to have an effect on the long-term certainty of the system. Moreover, legislation tends to evolve with big, sudden changes rather than with incremental ones. This may bring a whole new set of problems to the courts, which cannot ground their decisions in preexisting judicial practices. Although there are relevant exceptions, this trend may make statutory innovations more uncertain in the long run than incremental common law evolution. Another aspect that may play an important role from a dynamic perspective is the issue of retroactivity. While judge-made law is not retroactive, legislation can in principle have retroactive effect, even though not in all areas of the law. The possibility to reverse the law retroactively may also add to the long-term uncertainty of the system.

## **6.2 Substantive vs. procedural law**

In the analysis, we have focused on substantive law. However, uncertainty in the law may derive from rules, institutions and practices governing the enforcement of the law rather than from the law itself. When this is the case, the process of legal clarification and the striving for certainty is more likely to concern procedural and public law than substantive law. In this scenario, improving accountability of local institutions, countering corruption and limiting discretion of public officials will be more effective than amending the law.<sup>47</sup>

## **6.3 Law and customs**

Besides the law, customs have an important role in shaping behavior. Likewise, they also affect the way in which people perceive the law and, consequently, they have an impact on the uncertainty of law. As the quote that opens this article suggests, conflicting customs may result in disagreement and conflict in a similar way as conflicting interpretations of the law result

---

<sup>47</sup>Recent literature on law and finance is investigating the way in which law enforcement affects economic performance; see note 16 above.

in litigation. Custom conflicting with written law may also increase uncertainty when it is not perfectly clear which one prevails. However, under some circumstances, *contra legem* customary rules may reduce uncertainty. As Ellickson (1991) observes, informal customary rules may be so rooted in a certain social environment that they prevail on the law. When this is the case, uncertainty of law may be an irrelevant problem, as people will not resort to judicial enforcement of their perceived rights. From a different perspective, certain groups or individuals could rely on customs precisely because they consider them as more certain than the law. Although it is difficult to say whether in principle customs should be regarded as more or less uncertain than the law, there may be a selection bias in favor of certainty. If certainty is taken into account as part of the value of a legal rule, certain customs are likely to survive, while uncertain customs are likely to disappear and be replaced by law.<sup>48</sup>

#### 6.4 Advertising the law

Posner (1973, p. 430) observes that 'litigation is a more costly method of producing information than advertising,' leading to the point that the uncertainty in the law could be curbed by investing in diffusion of existing information rather than producing the same information *ex novo*. Restatements may be seen as a form of advertising the law. In itself, a restatement is not a source of law but its role as guidance for future judgments is difficult to deny. In addition, the legal system could rely on information produced during alternative methods of dispute resolution. Arbitrators in general do not write opinions and settlement terms are often kept private. Although other considerations may bear on the argument, lifting the veil of confidentiality that surrounds alternative dispute resolution may be beneficial, thereby enhancing the production of information. Nevertheless, such information would have a real value only if arbitration or settlement outcomes influenced following decisions by courts or else provided valid elements for predicting them. It is not clear however that any of the latter could be the case.

#### 6.5 Lawyers and law professors

Lawyers and academics are also an integral part of the legal process. Dewatripont and Tirole (1999) has emphasized the virtues of advocacy in producing valuable information on the pros and cons of certain judicial or leg-

---

<sup>48</sup>On customary law see Parisi (1998).

islative decisions. In this view, advocacy is beneficial for the legal system as a whole. From a different perspective, not only do lawyers assist parties in a trial but they also provide them with legal advice. Parties may benefit from legal advice *ex ante* about contemplated acts (Shavell, 1988, and Kaplow and Shavell, 1992) or *ex post* about acts already committed (Kaplow and Shavell, 1989 and 1990). This literature concludes that legal advice may or may not be desirable for society depending on the context.

The recourse to lawyers is likely to quantitatively alter the propensity of parties to settle. White (1992) shows that lawyers may have a direct interest in a certain level of complexity and uncertainty in the law, (because more uncertainty results in more litigation and hence larger profits for lawyers) but not an excessive level, because complexity increases lawyers' fees and hence reduces the amount of litigation.<sup>49</sup> In our analysis, litigation costs are exogenously determined by the policymaker. However, it could be objected that, as the law becomes more uncertain, litigation costs may rise due to more time being devoted to each case by lawyers and judges. Endogenizing litigation costs would be an interesting extension of our analysis.

Unlike lawyers, academics produce commentaries and information about the law which, even if aimed at a specific case (*ex ante* through an *amicus* brief or *ex post* through a comment on a specific judicial decision), are written with the purpose of affecting future scholarship, legal doctrines and possibly judicial lawmaking. Scholarly attention is more likely to be directed towards unsettled judicial practices and may hence affect the process of legal clarification. The direction of this effect, however, is not *a priori* obvious, as academics often disagree with each other on what the solution to a problem should be. Certainty in the law may also derive from the involvement of other institutions, such as enforcement agencies or private associations. The analysis could be extended to take such institutions into account explicitly.

## 6.6 Other motives for litigation

In some areas of the law a substantial amount of litigation may be due to factors other than uncertainty. We have already mentioned some of these factors in section 2.2, concluding that they do not affect our model because they do not respond to changes in the uncertainty in the law and hence can be treated as constant. Nevertheless, in a comparative perspec-

---

<sup>49</sup>Rubin and Bailey (1994) suggests that rent-seeking by lawyers may increase complexity and uncertainty in the law and in general affect legal evolution in the direction of producing inefficient rules. On lawyer's fees also the recent study by Baye, Kovenock and Vries (2005).

tive, accounting for them may be important. Different areas of the law may display different degrees of uncertainty which cannot be fully explained by differences in the rate of litigation or legislation. Litigation driven by other factors than uncertainty may nevertheless result in the production of precedents and statutory interpretation that help resolve the uncertainty in the law and hence may be a substitute for uncertainty-driven litigation. Areas in which such factors are important may be peculiar because they may exhibit low levels of uncertainty even with litigation being inelastic.

### 6.7 Other effects of uncertainty

We have postulated that more uncertainty results in more litigation. However, there are other issues that may play an important role and affect our results, namely with respect to law enforcement, risk-aversion and propensity to resort to private arbitrators. Some studies have emphasized that uncertainty may improve compliance with the law to the point of over-compliance.<sup>50</sup> If uncertainty generates more compliance with the law, it may in turn result in less litigation rather than more as we have postulated. More uncertainty may also result in more frequent arbitration and hence less litigation, as parties need to find alternative solutions to unreliable judicial patterns. More uncertainty could even result in a greater amount of settled cases if parties' risk aversion overcomes the divergence of their opinions over the outcome of the trial. All of these aspects need to be further investigated in order to be able to assess their effect on the relationship between uncertainty in the law and litigation rate and would constitute interesting extensions of our analysis.

## References

- [1] Anderson, David A. (ed.) (1996), *Dispute Resolution: Bridging the Settlement Gap*, Greenwich: JAI Press.
- [2] Aranson, Peter H. (1992), 'The Common Law as Central Economic Planning,' 3 *Constitutional Political Economy*, 289-317.
- [3] Aristophanes (422 B.C., 1998) *Clouds, Wasps, Peace* (Jeffrey Henderson trans.), vol. II, Loeb Classical Library, Cambridge: Harvard University Press.

---

<sup>50</sup>Craswell and Calfee (1986).

- [4] Aristotle (350 B.C., 1994), *The Athenian Constitution* (Frederic G. Kenyon trans.) MIT, The Internet Classics Archive, classics.mit.edu
- [5] Bailey, Martin J. and Rubin, Paul (1994), 'A Positive Theory of Legal Change,' 14 *International Review of Law and Economics*, 467-477.
- [6] Baye, Michael Roy, Kovenock, Dan and De Vries, Casper (2005), 'Comparative Analysis of Litigation Systems: An Auction-Theoretic Approach,' 115 *Economic Journal*, 583-601.
- [7] Bebchuk, Lucian A. (1984), 'Litigation and Settlement Under Imperfect Information,' 15 *RAND Journal of Economics*, 404-415.
- [8] Bebchuk, Lucian A. (1988), 'Suing Solely to Extract a Settlement Offer', 17 *Journal of Legal Studies*, 437-450.
- [9] Bebchuk, Lucian A. (1996), 'A New Theory Concerning the Credibility and Success of Threats to Sue,' 25 *Journal of Legal Studies*, 1-25.
- [10] Bentham, Jeremy (1817), *Papers Relative to Codification and Public Instruction*, London: John M'Creery.
- [11] Blackstone, William (1765-1769), *3 Commentaries on the Laws of England*, Oxford: Clarendon Press.
- [12] Bobbio, Norberto (1993), *Teoria Generale del Diritto*, Torino: Giapichelli.
- [13] Calabresi, Guido (1982), *A Common Law for the Age of Statutes*, Cambridge: Harvard University Press.
- [14] Carbonnier, Jean (1988), *Flexible droit: textes pour une sociologie du droit sans rigueur* (6<sup>th</sup> ed.) Paris: Librairie Générale de Droit et de Jurisprudence.
- [15] Cooter, Robert C. and Kornhauser, Lewis (1980), 'Can Litigation Improve the Law Without the Help of Judges?,' 9 *Journal of Legal Studies*, 139-163.
- [16] Cooter, Robert and Rubinfeld, Daniel L. (1989), 'Economic Analysis of Disputes and Their Resolution,' 27 *Journal of Economic Literature*, 1067-1097.

- [17] Cooter, Robert, Marks, Stephen and Mnookin, Robert (1982), 'Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior,' 11 *Journal of Legal Studies*, 225-251.
- [18] Craswell, Richard and Calfee, John E. (1986), 'Deterrence and Uncertain Legal Standards,' 2 *Journal of Law, Economics, and Organization*, 279-303.
- [19] Crew, Michael A. and Twight, Charlotte (1990), 'On the Efficiency of Law: A Public Choice Perspective', 66 *Public Choice*, 15-136.
- [20] Cross, Frank B. (2000), 'In Praise of Irrational Plaintiffs,' 86 *Cornell Law Review*, 1-32.
- [21] Danzon, Patricia Munch and Lillard, Lee A. (1983), 'Settled Out of Court: The Disposition of Medical Malpractice Claims,' 12 *Journal of Legal Studies*, 345-377.
- [22] Daughety Andrew F. (2000), 'Settlement,' in Boudewijn Bouckaert and Gerrit De Geest (eds.), 5 *Encyclopedia of Law and Economics*, Cheltenham: Edward Elgar, 95-158.
- [23] Daughety, Andrew F. and Reinganum, Jennifer F. (1999), 'Hush Money', 30 *RAND Journal of Economics*, 661-678.
- [24] Daughety Andrew F. and Reinganum, Jennifer (2005a), 'Economic Theories of Settlement Bargaining,' 1 *Annual Review of Law and Social Science*, 35-59.
- [25] Daughety Andrew F. and Reinganum, Jennifer (2005b), 'Secrecy and Safety,' 95 *American Economic Review*, 1074-1091.
- [26] Dewatripont, Mathias and Tirole, Jean (1999), 'Advocates,' 107 *Journal of Political Economy*, 1- 39.
- [27] Diver, Colin S. (1983), 'The Optimal Precision of Administrative Rules', 93 *Yale Law Journal*, 65-109.
- [28] Dixit, Avinash K. (2004), *Lawlessness and Economics*, Princeton: Princeton University Press.
- [29] Djankov, Simeon, La Porta, Rafael, Lopez-de-Silanes, Florencio, and Shleifer, Andrei (2003), 'Courts,' 118 *Quarterly Journal of Economics*, 453-517.

- [30] Drahozal, Christofer R. (2004), 'Ex Ante Selection of Disputes for Litigation,' working paper.
- [31] Eggleston, Karen, Posner, Eric A. and Zeckhauser, Richard (2000), 'The Design and Interpretation of Contracts: Why Complexity Matters,' 95 *Northwestern University Law Review*, 91-132.
- [32] Ehrlich, Isaac and Posner, Richard A. (1974), 'An Economic Analysis of Legal Rulemaking,' 3 *Journal of Legal Studies*, 257-286.
- [33] Elhauge, Einer R. (1991), 'Does Interest Group Theory Justify More Intrusive Judicial Review,' 101 *Yale Law Journal*, 31-110.
- [34] Ellickson, Robert C. (1991), *Order Without Law: How Neighbors Settle Disputes*, Cambridge, MA: Harvard University Press.
- [35] Farmer, Amy and Pecorino, Paul (1994), 'Pretrial Negotiation with Asymmetric Information on Risk Preferences, 14 *International Review of Law and Economics*, 273-281.
- [36] Fiss, Owen M. (1984), 'Against Settlement,' 93 *Yale Law Journal*, 1073-1090.
- [37] Fon, Vincy and Parisi, Francesco (2003), 'Litigation and the Evolution of Legal Remedies: A Dynamic Model,' 116 *Public Choice*, 419-433.
- [38] Gennaioli, Nicola and Schleifer, Andrei (2005), 'The Evolution of Precedent,' *working paper March 2005*.
- [39] Glaeser, Edward and Schleifer, Andrei (2002), 'Legal Origins,' 117 *Quarterly Journal of Economics*, 1193-1230.
- [40] Goodman, John C. (1978), 'An Economic Analysis of the Evolution of the Common Law,' 7 *Journal of Legal Studies*, 393-406.
- [41] Gould, John P. (1973), 'The Economics of Legal Conflicts,' 2 *Journal of Legal Studies*, 279-300.
- [42] Green, Michael Steven (2006), 'Legal Realism as Theory of Law,' 46 *William and Mary Law Review*, 1915-2000.
- [43] Grundfest, Joseph A. and Pritchard, Adam C. (2002), 'Statutes with Multiple Personality Disorders: The Value of Ambiguity in Statutory Design and Interpretation,' 54 *Stanford Law Review*, 627-736.

- [44] Hadfield, Gillian K. (1992), 'Bias in the Evolution of Legal Rules,' 80 *Georgetown Law Journal*, 583-616.
- [45] Hanssen, Andrew F. (1999), 'The Effect of Judicial Institutions on Uncertainty and the Rate of Litigation: The Election Versus Appointment of State Judges,' 28 *Journal of Legal Studies*, 205-232.
- [46] Hart, Herbert L.A. (1994), *The Concept of Law* (2<sup>nd</sup> ed.) Oxford: Clarendon Press.
- [47] Hart, Oliver and Moore, John (1999), 'Foundations of Incomplete Contracts,' 66 *Review of Economic Studies*, 115-138.
- [48] Hay, Bruce L. (1994), 'Civil Discovery: Its Effects and Optimal Scope,' 23 *Journal of Legal Studies*, 481-517.
- [49] Hay, Bruce L. (1995), 'Effort, Information, Settlement, Trial,' 24 *Journal of Legal Studies*, 29-62.
- [50] Hay, Bruce L. and Spier, Kathryn E. (1998), 'Settlement of Litigation,' in Peter Newman (ed.), 3 *The New Palgrave Dictionary of Economics and the Law*, London: Macmillan, 442-451.
- [51] Hayek, Friedrich A. (1960), *The Constitution of Liberty*, Chicago, IL: The University of Chicago Press.
- [52] Hayek, Friedrich A. (1973), *Law, Legislation and Liberty - Rules and Order*, Chicago IL: Chicago University Press.
- [53] Hirshleifer, Jack (1982), 'Evolutionary Models in Economics and Law,' 4 *Research in Law and Economics* (P. Rubin and R. Zerbe, eds.), Greenwich, CT: JAI Press.
- [54] Holmes, Oliver Wendell (1881) (Reprint 1968), *The Common Law*, London: Macmillan.
- [55] Hylton, Keith N. (2005), 'Information, Litigation and Common Law Evolution,' *Boston University School of Law, Working Paper Series, Law and Economics Working Paper no. 05-07*.
- [56] Judicial Business of the United States Courts (2004), *Annual Report Of The Director*, [uscourts.com](http://uscourts.com)
- [57] Kafka, Franz (1925, 1963), *The Trial* (English ed.) New York: Random House.

- [58] Kaplow, Louis (1994), 'The Value of Accuracy in Adjudication: An Economic Analysis,' 23 *Journal of Legal Studies*, 307-401.
- [59] Kaplow, Louis (2000), 'General Characteristics of Rules,' in Boudewijn Bouckaert and Gerrit De Geest (eds.), 5 *Encyclopedia of Law and Economics*, Cheltenham: Edward Elgar, 502-528.
- [60] Kaplow, Louis and Shavell, Steven (1989), 'Legal Advice About Information to Present in Litigation: Its Effects and Social Desirability,' 102 *Harvard Law Review*, 565-615.
- [61] Kaplow, Louis and Shavell, Steven (1990), 'Legal Advice About Acts Already Committed,' 10 *International Review of Law and Economics*, 149-159.
- [62] Kaplow, Louis and Shavell, Steven (1992), 'Private Versus Socially Optimal Provision of *Ex Ante* Legal Advice,' 8 *Journal of Law, Economics, and Organization*, 306-320.
- [63] Kaplow, Louis and Shavell, Steven (2002), *Fairness Versus Welfare*, Cambridge, MA: Harvard University Press.
- [64] Katz, Avery (1990), 'The Effect of Frivolous Lawsuits on the Settlement of Litigation', 10 *International Review of Law and Economics*, 3-27.
- [65] Kelsen, Hans (1960, 1967), *Pure Theory of Law*, (Max Knight trans.), Berkeley, CA: University of California Press.
- [66] Kennan, John and Wilson, Robert (1993), 'Bargaining with Private Information,' 31 *Journal of Economic Literature*, 45-104.
- [67] Knight, Frank H. (1921), *Risk, Uncertainty and Profit*, Boston: Houghton Mifflin.
- [68] Kritzer, Herbert (1991), *Let's Make a Deal: Understanding the Negotiation Process in Ordinary Litigation*, Madison: University of Wisconsin Press.
- [69] Kuhn, Thomas (1962), *The Structure of Scientific Revolutions*, Chicago, IL: The University of Chicago Press.
- [70] Landes, William M. (1971), 'An Economic Analysis of the Courts,' 14 *Journal of Law and Economics*, 61-107.

- [71] Landes, William M. and Posner, Richard A. (1976), 'Legal Precedent: A Theoretical and Empirical Analysis,' 19 *Journal of Law and Economics*, 249-307.
- [72] La Porta, Rafael, López-de-Silanes, Florencio, Shleifer, Andrei, and Vishny, Robert W. (1998), 'Law and Finance,' 106 *Journal of Political Economy*, 1113-1155.
- [73] Lederman, Leandra (1999), 'Which Cases Go to Trial: An Empirical Study of Predictors of Failure to Settle,' 49 *Case Western Law Review*, 315-358.
- [74] Leoni, Bruno (1991), *Freedom and the Law*, 3<sup>rd</sup> ed., Indianapolis: Liberty Fund.
- [75] Llewellyn, Karl N. (1960), *The Common Law Tradition: Deciding Appeals*, Boston: Little Brown.
- [76] Llewellyn, Karl N. (1951), *Bramble Bush: On Our Law and Its Study* (2<sup>nd</sup> ed.), New York: Oceana.
- [77] Loewenstein, George, Issacharoff, Samuel, Camerer, Colin and Babcock, Linda (1993), 'Self-serving Assessments of Fairness and Pretrial Bargaining,' 22 *Journal of Legal Studies*, 135-159.
- [78] Macey, Johnatan R. (1986), 'Promoting Public-Regarding Legislation Through Statutory Interpretation: An Interest Group Model,' 86 *Columbia Law Review*, 223-268.
- [79] Mahoney, Paul G. (2001), 'The Common Law and Economic Growth: Hayek Might Be Right,' 30 *Journal of Legal Studies*, 503-523.
- [80] Manzoni, Alessandro (1840), *I Promessi Sposi* (The Betrothed, first published in Italian), 21 The Harvard Classics, New York: P.F. Collier & Son (1909-1914); Bartleby.com (2001).
- [81] Maskin, Eric and Tirole, Jean A.F. (1999), 'Unforeseen Contingencies and Incomplete Contracts,' 66 *Review of Economic Studies*, 83-114.
- [82] Mnookin, Robert (1993), 'Why Negotiations Fail: An Exploration of Barriers to the Resolution of Conflict,' 8 *Ohio State Journal on Dispute Resolution*, 235-249.

- [83] North, Douglass C. (1988), 'Institutions, Economic Growth and Freedom: An Historical Introduction', in *Freedom, Democracy and Economic Welfare* (M.A. Walker, ed.), Vancouver: Fraser Institute.
- [84] Ostrom, Brian J., Kauder, Neal B. and LaFountain, Robert C. (2001) *Examining the Work of State Courts, 2001: A National Perspective from the Court Statistics Project*, Williamsburg: National Center for State Courts.
- [85] Parisi, Francesco (1998), 'Customary Law,' Peter Newman (ed.), 1 *The New Palgrave Dictionary of Economics and the Law*, London: Macmillan, 572-578.
- [86] Parisi, Francesco, Fon, Vincy and Ghei, Nita (forthcoming), 'The Value of Waiting in Lawmaking,' *European Journal of Law and Economics*.
- [87] Pascal, Blaise (1658), *Entretien avec M. de Saci sur Épictète et Montaigne*, in *Oeuvres complètes de Blaise Pascal* (1913), II, Paris: Librairie Hachette.
- [88] Perelman, Chaïm (1968), *Le problème des lacunes en droit*, Bruxelles: Bruylant.
- [89] Pistor, Katharina and Xu, Chenggang (2003), 'Incomplete Law,' 35 *New York University Journal of International Law and Politics*, 931-1013.
- [90] P'ng, Ivan P.L. (1983), 'Strategic Behavior in Suit, Settlement and Trial', 14 *Bell Journal of Economics*, 539-550.
- [91] P'ng, Ivan P. L. (1986), 'Optimal Subsidies and Damages in the Presence of Judicial Error,' 6 *International Review of Law and Economics*, 101-105.
- [92] Posner, Richard A. (1972), 'The Behavior of Administrative Agencies,' 1 *Journal of Legal Studies*, 305-347.
- [93] Posner, Richard A. (1973), 'An Economic Approach to Legal Procedure and Judicial Administration,' 2 *Journal of Legal Studies*, 399-458.
- [94] Posner, Richard A. (2003), *Economic Analysis of Law*, 6<sup>th</sup> ed., New York: Aspen.

- [95] Priest, George L. (1977), 'The Common Law Process and the Selection of Efficient Rules,' 6 *Journal of Legal Studies*, 65-82.
- [96] Priest, George L. (1982), 'Regulating the Content and the Volume of Litigation: An Economic Analysis,' 1 *Supreme Court Economic Review*, 163-183.
- [97] Priest, George L. and Klein, Benjamin (1984), 'The Selection of Disputes for Litigation,' 13 *Journal of Legal Studies*, 1-55.
- [98] Priest, George L. (1987), 'Measuring Legal Change,' 3 *Journal of Law, Economics and Organization*, 193-225.
- [99] Rachlinski, Jeffrey J. (2006), 'Bottom-Up Versus Top-Down Lawmaking,' 73 *University of Chicago Law Review*, forthcoming.
- [100] Reinganum, Jennifer and Wilde, Louis (1986), 'Settlement, Litigation, and the Allocation of Litigation Costs,' 17 *RAND Journal of Economics*, 557-566.
- [101] Roe, Mark J. (1996), 'Chaos and Evolution in Law and Economics,' 109 *Harvard Law Review*, 641-668.
- [102] Rosenberg, David and Shavell, Steven (1985), 'A Model in Which Suits are Brought for Their Nuisance Value', 5 *International Review of Law and Economics*, 3-13.
- [103] Ross, H. Laurence (1980), *Settled Out of Court: The Social Process of Insurance Claims Adjustments*, 2<sup>nd</sup> ed., New York: Aldine de Gruyter.
- [104] Rubin, Paul H. (1977), 'Why Is the Common Law Efficient,' 6 *Journal of Legal Studies*, 51-63.
- [105] Rubin, Paul H. (1982), 'Common Law and Statute Law,' 11 *Journal of Legal Studies*, 205-233.
- [106] Rubin, Paul H. (2005a), 'Micro and Macro Legal Efficiency: Supply and Demand,' 13 *Supreme Court Economic Review*, 19-34.
- [107] Rubin, Paul H. (2005b), 'Why Was the Common Law Efficient?,' in Francesco Parisi and Charles Rowley (eds.), *The Origins of Law and Economics: Essays by the Founding Fathers*, Cheltenham: Edward Elgar, 383-395.

- [108] Rubin, Paul H. and Bailey, Martin J. (1994), 'The Role of Lawyers in Changing the Law,' 23 *Journal of Legal Studies*, 807-831.
- [109] Rubin, Paul H., Curran, Christopher, Curran, John F. (2001), 'Litigation Versus Legislation: Forum Shopping by Rent Seekers,' 107 *Public Choice*, 295-310.
- [110] Schauer, Frederick (2003), 'The Convergence of Rules and Standards,' *New Zealand Law Review*, 303-328.
- [111] Schauer, Frederick (2005), 'Do Cases Make Bad Law?', *KSG Working Paper No. RWP05-013*.
- [112] Scott, Robert E. and Triantis, George G. (forthcoming), 'Harnessing Litigation by Contract Design,' 115 *Yale Law Journal*.
- [113] Shavell, Steven (1982a), 'Suit, Settlement and Trial: A Theoretical Analysis Under Alternative Methods for the Allocation of Legal Costs,' 11 *Journal of Legal Studies*, 55-81.
- [114] Shavell, Steven (1982b), 'The Social Versus the Private Incentive to Bring Suit in a Costly Legal System,' 11 *Journal of Legal Studies*, 333-340.
- [115] Shavell, Steven (1988), 'Legal Advice About Contemplated Acts: The Decision to Obtain Advice, Its Social Desirability, and Protection of Confidentiality,' 17 *Journal of Legal Studies*, 123-150.
- [116] Shavell, Steven (1989), 'The Sharing of Information Prior to Settlement or Litigation,' 20 *RAND Journal of Economics*, 183-195.
- [117] Shavell, Steven (1997), 'The Fundamental Divergence Between the Private and the Social Motive to Use the Legal System,' 26 *Journal of Legal Studies*, 575-516.
- [118] Sobel, Joel (1989), 'An Analysis of Discovery Rules,' 52 *Law and Contemporary Problems*, 133-159.
- [119] Solum, Lawrence B. (1999), 'Indeterminacy,' in Dennis M. Patterson (ed.), *A Companion to Philosophy of Law and Legal Theory*, Malden: Blackwell Publishers.
- [120] Spier, Kathryn E. (1992), 'The Dynamics of Pretrial Negotiation,' 59 *Review of Economic Studies*, 93-108.

- [121] Spier, Kathryn E. (1994), 'Pretrial Bargaining and the Design of Fee-shifting Rules,' 25 *RAND Journal of Economics*, 197-214.
- [122] Spier, Kathryn E. (1997), 'A Note on the Divergence Between the Private and Social Motive to Settle Under a Negligence Rule,' 26 *Journal of Legal Studies*, 613-621.
- [123] Stinchcombe, Arthur (1999), 'Certainty of the Law: Reasons, Situation-Types, Analogy, and Equilibrium,' 7 *Journal of Political Philosophy*, 209-224.
- [124] Tillinghast – Towers Perrin (2005), *U.S. Tort Costs, 2004 Update: Trends and Findings on the Costs of the U.S. Tort System*, towersperrin.com.
- [125] Tirole, Jean (1999), 'Incomplete Contracts: Where Do We Stand?,' 67 *Econometrica*, 741-781.
- [126] Tullock, Gordon (1997), *The Case Against the Common Law*, Durham, NC: Carolina Academic Press.
- [127] Weber, Max (1925, 1954), *Max Weber on Law in Economy and Society* (Edward Shils and Max Rheinstein eds.), Cambridge, MA: Harvard University Press.
- [128] White, Michelle (1992), 'Legal Complexity and Lawyer's Benefit From Litigation,' 12 *International Review of Law and Economics*, 381-395.
- [129] World Bank (2003), *Doing Business in 2004: Understanding Regulation*, Oxford: Oxford University Press and doingbusiness.org.
- [130] World Bank (2004), *Doing Business in 2005: Removing Obstacles to Growth*, Oxford: Oxford University Press and doingbusiness.org.
- [131] World Bank (2005), *Doing Business in 2006: Creating Jobs*, doingbusiness.org.
- [132] Xu, Chenggang and Pistor, Katharina (2002), 'Law Enforcement Under Incomplete Law: Theory and Evidence From Financial Market Regulation,' *Columbia Law and Economic Working Paper No. 222*.
- [133] Zweigert, Konrad and Kötz, Hein (1998), *Comparative Law* (3<sup>rd</sup> ed.), Oxford, University Press.

- [134] Zywicki, Todd J. (1996), 'A Unanimity-Reinforcing Model of Efficiency in the Common Law: An Institutional Comparison of Common Law and Legislative Solutions to Large-Number Externality Problems,' 46 *Case Western Reserve Law Review*, 961-1031.
- [135] Zywicki, Todd J. (2003), 'The Rise and Fall of Efficiency in the Common Law: A Supply-Side Analysis,' 97 *Northwestern Law Review*, 1551-1634.

**FIGURES**

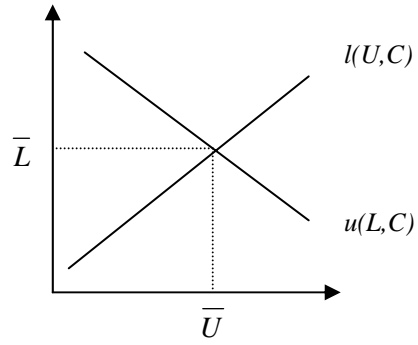


Figure 1 – The natural rates of litigation and incompleteness

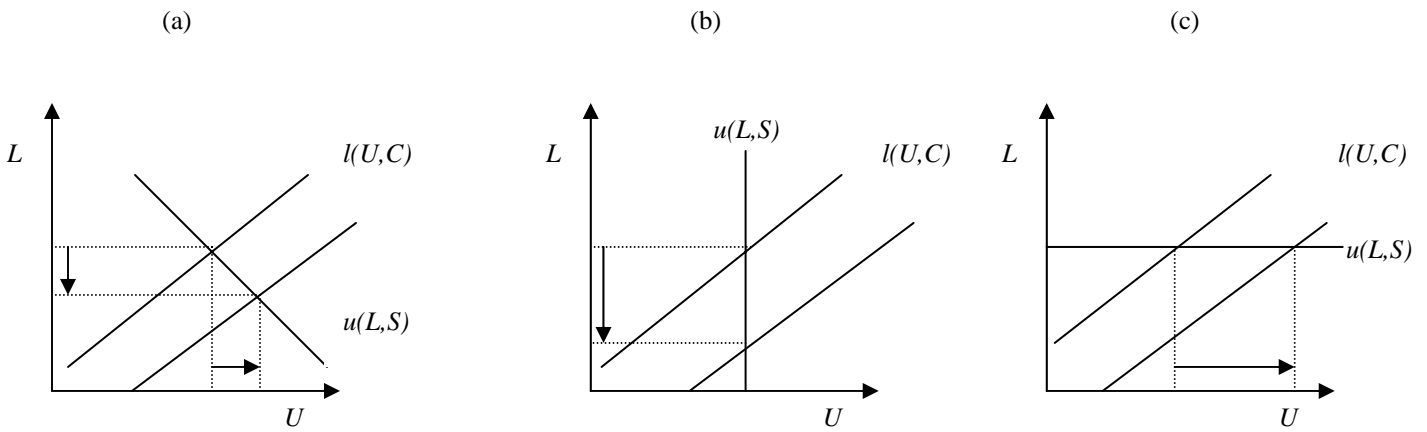


Figure 2 – Effect of an increase in the cost of litigation

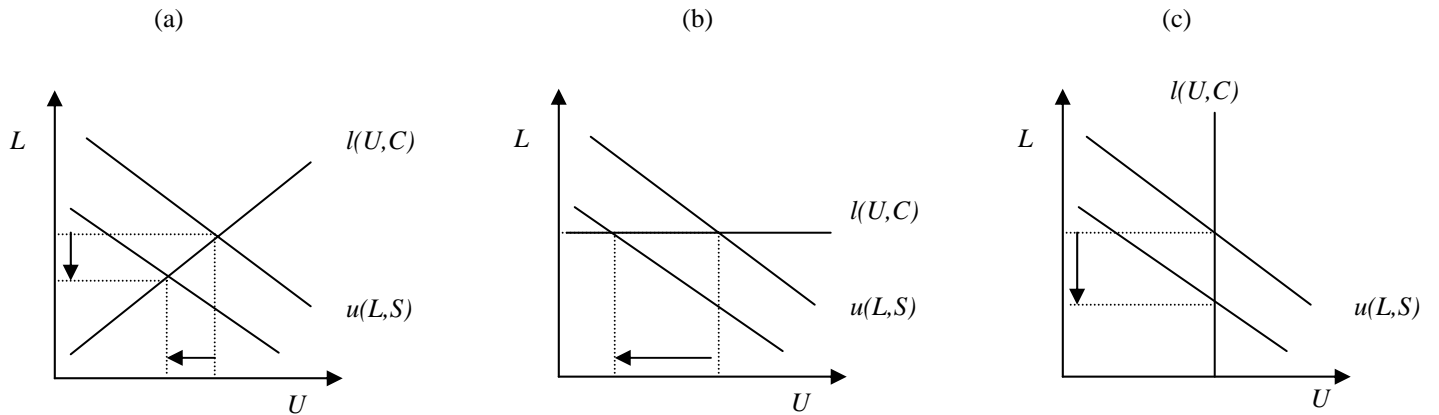


Figure 3 – Effect of an increase in the supply of completeness