Incompleteness of Law[*]

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January 31, 2005

Abstract

The law is naturally incomplete and incompleteness makes the outcomes of trials difficult to predict and, hence, prevents parties from settling disputes out of court. Conversely, litigation forsters the creation of precedents that reduce incompleteness. We show that there is a natural balance between the degree of incompleteness of a legal system (kept under control by litigation) and its litigation rate (sustained by incompleteness). We describe such equilibrium rates of litigation and incompleteness in a demand-supply model and study how they are affected by two different policies: taxing or subsidizing litigation and direct law-making by the legislature.

JEL classification: K10, K40, K41.
Keywords: incompleteness of law, uncertainty, litigation, judge-made law, legislation.

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1 Introduction

Writing complete laws is a titanic endeavor, just like drafting complete contracts.[1] Unforeseen contingencies, vague terms, the inherent ambiguity of language itself, and a natural process of obsolescence due to continual changes in society and technology make legal rules often lack far behind the matters they are intended to regulate. Although the law is necessarily incomplete ex ante, gaps may be filled in ex post by the courts. This analysis starts with exploring two ways in which incompleteness of law and the litigation process may be connected, which have only separately been analysed in previous literature.[2]

On the one hand, one reason why parties may resort to litigation rather than to settlement out of court is that they may find it difficult to predict the outcome of the trial and thus their expectations over it may diverge. In this scenario, incompleteness of law adds to the uncertainty surrounding the process of adjudication and thus fosters litigation.[3] On the other hand, when parties litigate, judges are called upon to clarify the ambiguities contained in the legal rules at issue and hence fill in their gaps. Consequently,

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[1] LITERATURE TO BE ADDED_ _

[2] The concept of incompleteness of law appeared recently in the litterature. Pistor and Xu (2002) define a law as complete when all relevant applications of the law are unambiguously stipulated. Otherwise they argue that law can be incomplete when it "contains gaps" or when the "boundaries of the law are not clearly circumscribed". In this way, every rule containing ambiguous terms such as "fairness" or "bona fide" appears to be incomplete. This implies that the hypothesis of perfect knowledge of rules by litigants, implicit in a great number of models, is inconsistent with reality. Many rules of law refer to ambiguous terms that judges have to interpret. Naturally, parties in conflicts will have their own appreciation of these rules. So, we can consider that if a law is incomplete, parties and judges have their own expectations and may disagree about them. Consequently, incompleteness of law influences litigation because it implies interpretation, which generates in uncertainty. The problem is not entirely new. Landes and Posner (1976) and Posner (1992) consider that the body of precedent can be analogized to a capital stock that depreciates over time Studying the formalism of law, Kaplow (1997) argues that an optimal level of complexity is needed to maximize social welfare. This means that legal systems have to find an equilibrium between over-detailed laws and ambiguous terms. The idea is that complexity implies costs of learning by agents and thus insecurity whereas judges' interpretation implies uncertainty. However, this approach doesnt' capture the very nature of incompleteness, especially the dynamic of its relation with litigation.

[3] If they agree on the legal solution to their dispute, in fact, they can anticipate the outcome of the adjudication and hence, bargaining in the shadow of the law, they can replicate it into a settlement agreement or a private contract that saves litigation costs. LITERATURE ON LITIGATION AND SETTLEMENT TO BE ADDED_ _

litigation yields to the production of precedents[4] and, thus, reduces the degree of incompleteness of the legal system.[5] Using a demand-supply model of completeness of law, we show that there is a natural balance between the degree of incompleteness of a legal system (kept under control by litigation) and its litigation rate (sustained by incompleteness).

In this framework, we study the effects of two different policies that, although directly aimed either at reducing the degree of incompleteness of the legal system or at controlling the litigation rate, indirectly affect both of them.

One policy we consider is direct law-making by the legislature. Gaps in the law may be directly addressed by the policy-maker through more detailed legislation. Legislature is an ex ante, centralized, and publicly initiated supplier of completeness of law, since rules are produced by a central lawmaker with the explicit goal of filling in the gaps in the legal system. Alternatively, the policy-maker may rely on the judicial system for the creation of detailed rules. In doing so, he may decide to reduce the cost of litigation (or even subsidize it) in order to induce more parties to litigate and hence stimulate judicial lawmaking.

When detailed laws are directly supplied by legislation, the degree of incompleteness falls; however, a fall in incompleteness causes a similar reduction in the level of litigation, which in turn increases incompleteness. Therefore, the net effect of legislation on incompleteness is less than its direct effect. This analysis provides the interesting inside that attempts to foster the completeness of the law may find a natural obstacle in the offsetting effect they have on the courts' lawmaking activity, in a similar way as the safety gain from introducing the compulsory use of safety belts may be partially offsets by the fact that motorists feel safer and thus drive more recklessly. The likely response to direct lawmaking by the legislature is a drop in both the degree of incompleteness and the litigation rate.

Instead, when policies directly target the litigation rate by affecting the costs of bringing a law suit through taxes or subsidies, the litigation rate and the degree of incompleteness change in opposite directions. If the cost

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[4]Although one may be induced to conlcude that thsi analysis only applies to common law systems, where the role of the judicial law-making is traditionally recongnized as one of the main sources of law, it is important to remark that legislation and litigation coexists in the two systems. Albeit to a different extent, also civil law courts, especially supreme courts, rutinely supply the legal system with new rules and produce (binding) precendents for lower courts. Thus, our approach may be applied to common law as well as civil law countries.

[5]LITERATURE ON INCOMPLETENESS TO BE ADDED_ _

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of litigation is lowered, the litigation rate will rise, causing the degree of incompleteness to fall, while the reduction in incompleteness partially offsets the rise in litigation. Instead, if the policy-maker aims at reducing the litigation rate, incompleteness 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 incompleteness of a legal system are inherently related and one cannot control one without affecting the other. One interpretation of these results – the one that more directly follows from the prose of our model – is that governments may curb the degree of incompleteness of the legal system by supplying completeness 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 incompleteness, or indirectly, by providing completeness and hence removing the motives for litigation.

. We 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 has thus a direct and publicly borne cost, while private parties at least partially incur 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 reducing incompleteness or keeping litigation under control, the optimal mix of the two policies described above – legislation vs. litigation taxes or subsidies – will be shown to balance their public and private costs.

In section 2, we address these problems and study the interactions between litigation and incompleteness of law in a static demand-supply model and examine how they react to exogenous shocks in the degree of public supply of completeness (legislation) and litigation costs. In section 3, we study the effects, the costs and the optimal mix of legislation and litigation-costs policies. In section 4, we conclude elaborating on the implications and the explanatory power of our theory.

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2 The model of litigation and incompleteness of law

In this section, we describe the reciprocal influence of incompleteness and litigation on each other in a static model. In the model, private parties' decisions of whether to settle or litigate are contingent on the degree of incompleteness over the legal matter of the claim and on the cost of lawsuits. A certain degree of incompleteness causes parties expectations over the judicial adjudication to diverge and therefore motivates parties to litigate. 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.

Conversely, litigation enhances completeness within the legal system as it enables the judicial system to intervene into the process of clarifying the law in response to a changing social and economic environment. Litigation counterbalances the tendency of legal rules towards obsolescence and it may be seen as a constant process of consolidating the law by means of reconciling it with constantly emerging new scenarios. Let $U \in [0, 1]$ be some index of the degree of incompleteness of law over a certain legal issue: $U = 0$ if parties' expectations over the probability of success converge, $U = 1$ if parties' expectations are diametrically divergent.

Next to the degree of incompleteness and the litigation rate – which are endogenously determined –, we also consider two exogenous parameters: the cost of lawsuits $c \in [0, \infty)$, which curbs litigation and enhances settlement; and some index of the public, direct supply of completeness through legislation $s \in [0, \infty)$, which is the degree to which gaps in the law are filled by the legislator rather than by the judge. Thus, an increase in s leads to a reduction in the degree of incompleteness.

The relationship between L, U, c and s may thus be described as follows (subscripts denote partial derivatives):

$L = L(U, c); L_U \geq 0; L_c < 0;$
$U = U(L, s); U_L \leq 0; U_s < 0.$

Litigation costs and supply of completeness are determined exogenously and will be considered here as policy variables. Given any pair of c and s, in equilibrium there will be natural rates of litigation and incompleteness that balance each other and, as depicted in figure 1 (which, for simplicity, depicts straight lines), solve:

$$\begin{cases} L = L\left(U, c\right) \\ U = U(L, s \end{cases} \tag{1}$$

INSERT HERE FIGURE 1

Let upper bars denote the solutions to Exp. (1), which may also be expressed as functions of c and s, $\overline{L} = \overline{L}\left(c, s\right)$ and $\overline{U} = \overline{U}\left(c, s\right)$, as to emphasize that the natural rates of litigation and incompleteness depend upon two different parameters: the level of the litigation cost privately borne by parties to a suit, and the level of legislation – the centralized supply of legal completeness. Also the cost of litigation is at least partially under the control of the legislator through taxing or subsiding litigation. In order to appreciate the effects of changes in the litigation costs on such natural levels, let us consider the derivative of $\overline{L}$ with respect to c.

$$\frac{d\overline{L}}{dc} = \frac{L_c}{1 - U_L L_U} < 0 \tag{2}$$

An increase in the litigation costs triggers a decrease in the natural level of litigation. Since the partial derivatives of L with respect to U and vice versa appear in the denominator, and their product is negative, it is clear that when their absolute value decreases, the effect of litigation costs on the natural level of litigation is enhanced. That is to say that the less interdependent litigation and incompleteness are, the more effective a policy of controlling the rate of litigation through litigation costs is. Conversely, the more litigation and incompleteness mutually influence each other, the more the attempt to reduce (increase) the rate of litigation by means of an increase (decrease) in litigation costs will be offset by the fact that when litigation decreases, incompleteness 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 are zero.

It is also easy to show that the final effect of an increase (decrease) in the litigation cost is an increase (decrease) in the level of incompleteness. In fact:

$$\frac{d\overline{U}}{dc} = \frac{L_c U_L}{1 - U_L L_U} \geq 0 \tag{3}$$

If $U_L = 0$ a litigation-cost policy has no effect on the level of incompleteness. However, if $L_U = 0$ the effect is higher than for positive levels of L_U.

In general, the effect of litigation-cost policies on incompleteness is directly related 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 (decrease) in litigation costs reduces (increases) the level of litigation but increases (reduces) the level of incompleteness. The lower the degree to which litigation affects incompleteness $|U_L|$, the greater the effect of litigation-cost policies on litigation and the lower the effect thereof on incompleteness. On the contrary, the lower the degree to which incompleteness affects litigation $|L_U|$, the greater the effect of litigation-cost policies on both litigation and incompleteness.*

Likewise, in order to assess the effect of public supply of completeness let us study the derivative of U with respect to s.

$$\frac{d\overline{U}}{ds} = \frac{U_s}{1 - U_L L_U} < 0 \qquad (4)$$

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

Finally, it is easy to show that the final effect of an increase (decrease) in the public supply of completeness is a decrease (increase) in the level of litigation. In fact:

$$\frac{d\overline{L}}{ds} = \frac{U_s L_U}{1 - U_L L_U} \leq 0 \qquad (5)$$

Since L_U is positive or zero, while U_s is negative and U_L is negative or zero, Exp. (5) is correct. 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 (decrease) in the public supply of completeness reduces (increases) the rate of litigation while also reducing (increasing) the level of incompleteness. The lower the degree to which incompleteness affects litigation $|L_U|$, the greater the effect of supply policies on incompleteness and the lower the effect thereof on litigation. On the contrary, the lower the degree to which litigation affects incompleteness $|U_L|$, the greater the effect of supply policies on both litigation and incompleteness.*

3 Legislation vs. litigation-costs policies

The relationship between litigation and incompleteness may be analogized to a demand-supply model for the specific good of our concern: completeness of law. The litigation function $L(U, c)$ can be interpreted as the demand for completeness, as it provides with a measure of how much parties are willing to pay in terms of litigation to enhance completeness (i.e. reducing incompleteness), for any given level of litigation costs c. Conversely, the incompleteness function $U(L, s)$ may be seen as a private supply function of completeness, as it provides a measure of how much a reduction in incompleteness costs in terms of litigation, for any given level of the public supply of completeness s. Hence, in such (implicit) market for completeness, parties pay with litigation expenses and an equilibrium is attained when demand and supply cross, as depicted in figure 1. Note that the figure depicts on the horizontal axis incompleteness, while demand and supply refer to completeness, this is why the slopes are inverted if compared to traditional models and 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 incompleteness may thus be rephrased 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) or on the supply side (a variation in legislation). The results of propositions 1 and 2 will be hereafter reinterpreted with the help of graphical analysis.

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3.1 The effect of litigation costs on litigation and incompleteness

A variation in litigation costs c has the effect of shifting demand. 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 incompleteness and a (partially offset) decrease in litigation, and quantitatively depends on the elasticity of litigation and incompleteness.

INSERT HERE FIGURE 2

If incompleteness is perfectly inelastic, an increase in litigation costs corresponds to a decrease in litigation without increasing incompleteness, as in figure 2 (b). On the contrary, if incompleteness is perfectly elastic as in figure 2 (c), an increase in litigation costs only corresponds to an increase in incompleteness, as the effect on the rate of litigation is completely offset by the feedback effect of incompleteness on litigation.

It may be further remarked that also the elasticity of the litigation function affects the effectiveness of litigation cost policies, the effect being maximal when litigation is inelastic.

3.2 The effect of legislation on litigation and incompleteness

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

INSERT HERE FIGURE 3

An increase in the supply of completeness s as a direct effect reduces incompleteness. As an indirect effect, a reduction in incompleteness also reduces litigation. The outcome of completeness-supply policies is a reduction in both litigation and incompleteness. As before, the outcome quantitatively depends on the elasticity of the curves. If litigation is perfectly inelastic, an increase in the supply of completeness reduces incompleteness without reducing litigation, an in figure 3 (b). On the contrary, if litigation is perfectly elastic, public supply of completeness only reduces litigation, while the degree of incompleteness remains unchanged, as in figure 3 (c). In the latter

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case, public supply of completeness simply substitutes the private, without any resulting effect on legal completeness. Also the elasticity of the incompleteness curve affects the outcome. The effect of supply policies is maximal when incompleteness is inelastic.

3.3 The socially optimal levels of litigation and incompleteness

In the previous sections, we have remarked that there exist natural levels of litigation and incompleteness 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 study the question of what the optimal levels of litigation and incompleteness are, among all the natural levels of litigation and incompleteness that may be attained by some combination of litigation-costs and legislation policies.

Let us consider as a benchmark case a world without incompleteness, in which the litigation rate is zero and the allocation of resources is optimal. Finding the socially optimal levels of incompleteness and litigation (and of the public policies described) in a world with a positive degree of incompleteness of law may be regarded as a cost minimization problem, in which litigation triggers a direct cost (in the form of court administration, lawyers fees and parties' direct costs), a portion of which, c, is directly borne by the parties' and the rest is borne by taxpayers. Incompleteness triggers instead an allocative cost, as the lack of completeness concerning legal entitlements distorts the process of resource allocation. Moreover, the public supply of legal completeness has a cost that, without loss of generality, will be represented by the level itself of public supply, s. Let C be the overall cost of litigation and D the allocative cost of incompleteness. Let us further specify them as follows:

$$C = C\left(\overline{L}\right); C_{\overline{L}} > 0$$
$$D = D\left(\overline{U}\right); D_{\overline{U}} > 0.$$

The litigation cost c borne by the parties to a dispute may represent a fraction of the overall costs, $c \leq C$, or they may exceed C. 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

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the overall cost C matters. The social cost minimization problem may be formalized as follows:

$$\min_{c,s} \left[C \left(\overline{L} \left(c, s \right) \right) + D \left(\overline{U} \left(c, s \right) + s \right) \right] \tag{6}$$

For the sake of simplicity, we shall assume that the solutions to the problem in Exp. (6) are positive and unique. Let c^* and s^* denote such solutions. They satisfy the two first-order conditions:

$$-\frac{\partial C}{\partial c} = \frac{\partial D}{\partial c} \tag{7}$$

$$\frac{\partial \left(C + D \right)}{\partial s} = -1 \tag{8}$$

From the assumptions made, it is easy to show that the signs of the terms in Exp. (7) and (8) are as follows: $\frac{\partial C}{\partial c} = \frac{C_L d\overline{L}}{dc} < 0$; $\frac{\partial D}{\partial c} = \frac{D_U d\overline{U}}{dc} \geq 0$; $\frac{\partial C}{\partial s} = \frac{C_L d\overline{L}}{ds} \leq 0$; $\frac{\partial D}{\partial s} = \frac{D_U d\overline{U}}{ds} < 0$. From Exp. (7) it follows that the level of c affects the cost of litigation and the costs of incompleteness in opposite ways; hence, the problem is to balance the trade-off between decreasing the overall litigation costs and increasing the misallocation costs for a given level of public supply of completeness. From Exp. (8) it follows that since s affects C and D in the same direction, an increase in the public supply of legal completeness 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 cost of public supply of legal completeness.

4   Concluding remarks

The law is necessarily complete ex post, but inescapably incomplete ex ante. Adjudicators in any legal system possess tools to interpret existing rules, draw analogies, or even create new rules whenever the available ones do not adequately fit reality. However, it would be impossible or at least extremely difficult to write such rules ex ante, which do not need any ex post adjustment to reality. This paper constitutes a first attempt to investigate the ways in which this process works.

We have looked at ex ante legislation and ex post adjudication as two alternative ways to reduce the incompleteness of the law and argued that the rate of litigation in a legal system and its degree of incompleteness are connected with each other. By using a simple demand-supply model, we have interpreted the completeness of law as a good that can be directly

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supplied by the state or sought by the citizens through the judicial process of dispute resolution. In this sense, we have argued that completeness of law may be publicly or privately supplied.

In carrying out our framework, we have abstracted ourselves from several aspect that bear on legislation and adjudication and are usually the object of economic analysis. In particular, we have not focused on the content of legal rules, but rather on the novel question of whether they are complete or not, irrespective of their desirability.

Far from providing definite answers to that practical problems lawmakers daily face in the creation and interpretation of the law, our theory brings attention to several issues that could be empirically investigated. First of all, in the face of the divide between civil law and common law countries, from our theory seems to emerge that, given the broader reliance on judge-made law in common law jurisdiction, one may expect systematically higher litigation rates in such countries than in civil law countries, due to the fact that less completeness of law is provided by legislature in the former group of countries. Our theory emphasizes that neither of the two systems is in principle superior, the difference between the two being a different balance in the allocation of the costs triggered by the production of law. Legislation comes in fact at a cost that is entirely paid by all taxpayers, while the litigation costs are at least partially borne by those who are parties in a dispute. We have provided with some indications of how the optimal mix of litigation and legislation should balance these costs.

A second point that our theory rises concerns the modern waves of litigation in certain areas of the law. We stressed that policies aimed at reducing the litigation rate also affect the degree of law's incompleteness and may, under certain conditions, suffer from a feedback effect due to the fact that reduced litigation triggers incompleteness, which in turn tend to rise the litigation rate. Understanding the way in which litigation and incompleteness of law interact may help policy makers and scholars in better comprehend the effects of policies targeting one or the other problem.
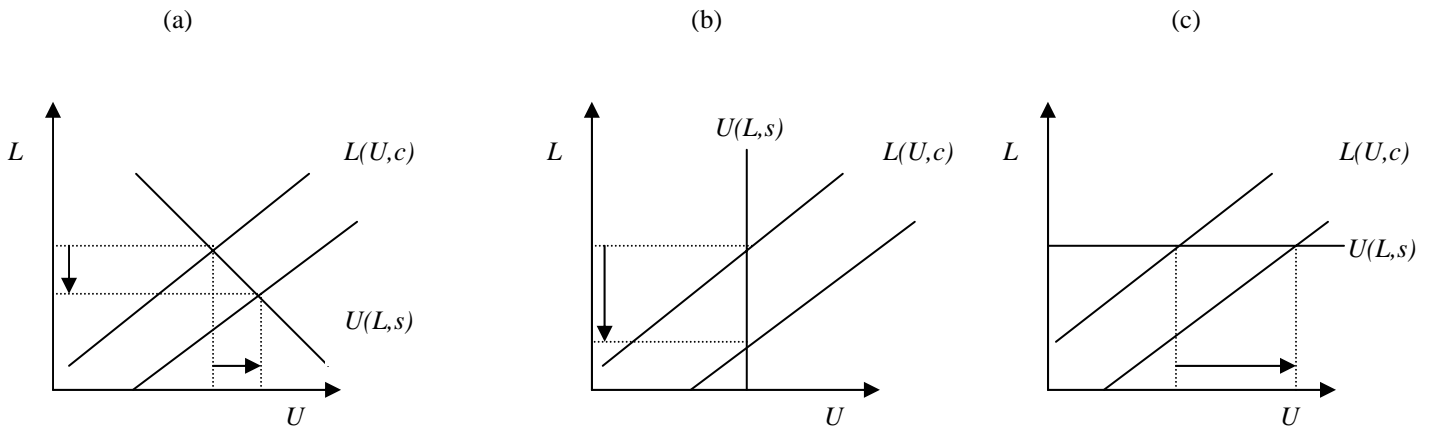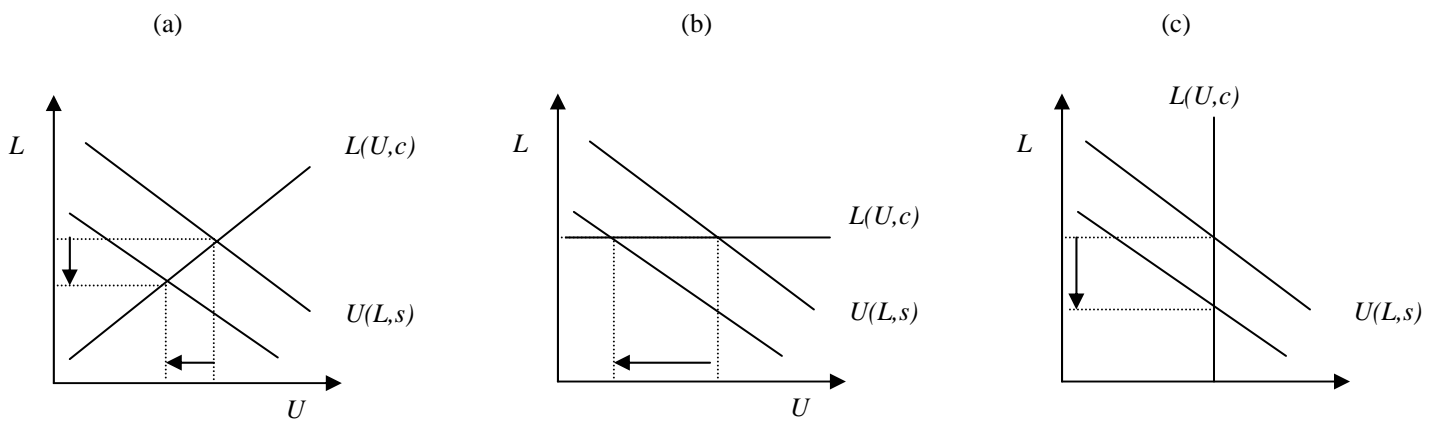
References

[1] REFERENCE LIST TO BE ADDED.

FIGURES
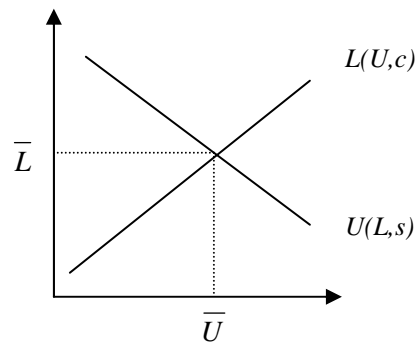
Figure 1 – The natural rates of litigation and incompleteness

(a)   (b)   (c)

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

(a)   (b)   (c)

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